



88075059

U.S.B.M. PILOT HOLE "X"
HORSE DRAW, RIO BLANCO COUNTY
COLORADO

~~James F.
U.S. Bureau of Land Management
Denver Mining Research Center
Mine Engineering Group
Building 10, Denver Federal Center
Denver, CO 80225~~

VOLUME I - SECTION I

APPENDIX I: GEOPHYSICAL LOGS

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Prepared for

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

by

GOLDER ASSOCIATES, INC.
Kirkland (Seattle), Washington

FINAL REPORT

on

Contract No. SO261060

March 1977

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1. Report No.	BLM Library D-853A, Building 50 Denver, Federal Center		3. Recipient Accession No.
4. Title and Subtitle	U.S.B.M. PILOT HOLE "X", HORSE DRAW RIO BLANCO COUNTY, COLORADO VOLUME I - SECTION I: APPENDIX I		5. Report Date MARCH 1977
7. Author(s)	L. A. READDY, D. L. PENTZ		6.
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15. Supplementary Notes	13. Type of Report FINAL		
16. Abstract	No text. A set of geophysical well logs for U.S.B.M. Pilot Hole "X", Piceance Creek Basin, Colorado.		
17. Originator's Key Words	18. Availability Statement		
Geophysical Well Logs Pilot Hole "X", Piceance Creek Basin, Colorado			
19. U.S. Security Classification of the Report	20. U.S. Security Classification of this Page	21. No. of Pages	22. Price
		7	

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MasterAtlas

Directional Survey

DRILLING COMPANY

= "X"

COLORADO

Other Services



Directional Survey

FILE NO.	COMPANY ESI DRILLING COMPANY		
	WELL	PILOT HOLE "X"	
	FIELD	RIO BLANCO	
	COUNTY	RIO BLANCO	STATE COLORADO
	LOCATION: 420' E OF WL; 1650' N OF SL		Other Services
	SEC	29	TWP 1-S RGE 97-W
Permanent Datum	GROUND LEVEL		Elev 6284
Log Measured from	KB	4	Ft. Above Permanent Datum
Drilling Measured from	KB		
Date	10-25-76		
Run No.	ONE		
Depth-Driller	2531		
Depth-Logger	2524		
Bottom Logged Interval	2521		
Top Logged Interval	200		
Casing-Driller	8-5/8@ 156	@	@
Casing-Logger	NOT LOGGED		
Bit Size	6-1/4"		
Type Fluid in Hole	GEL		
Density and Viscosity	8.5	38	
pH and Fluid Loss	8.5	6	cc
Source of Sample	FLOWLINE		
Rm @ Meas. Temp.	0.21	@ 48	°F
Rmf @ Meas. Temp.	@	°F	@
Rmc @ Meas. Temp.	@	°F	@
Source of Rmf and Rmc			
Rm @ BHT	0.09	@ 113	°F
Time Since Circ.			
Max. Rec. Temp. Deg. F.	113	°F	°F
Equip. No. and Location	ROCK SPRINGS		
Recorded By	ALEXY		
Witnessed By	SNOW		

THIS HEADING AND LOG CONFORMS TO API RECOMMENDED STANDARD PRACTICE RP-31			
Equipment Used			
Series No.	1006M	Run No.	ONE
S.O.	54923	Tool No.	24348-15
Elec. No.	24344-12	Panel No.	30330
Elevations			
KB	6288	DF	
GL	6284		

96.17 W
326.86 N

N 16.39 W
340.71 FT.

96.17 W
326.86 N

N 16.39 W
340.71 FT.

96.17 W
326.86 N

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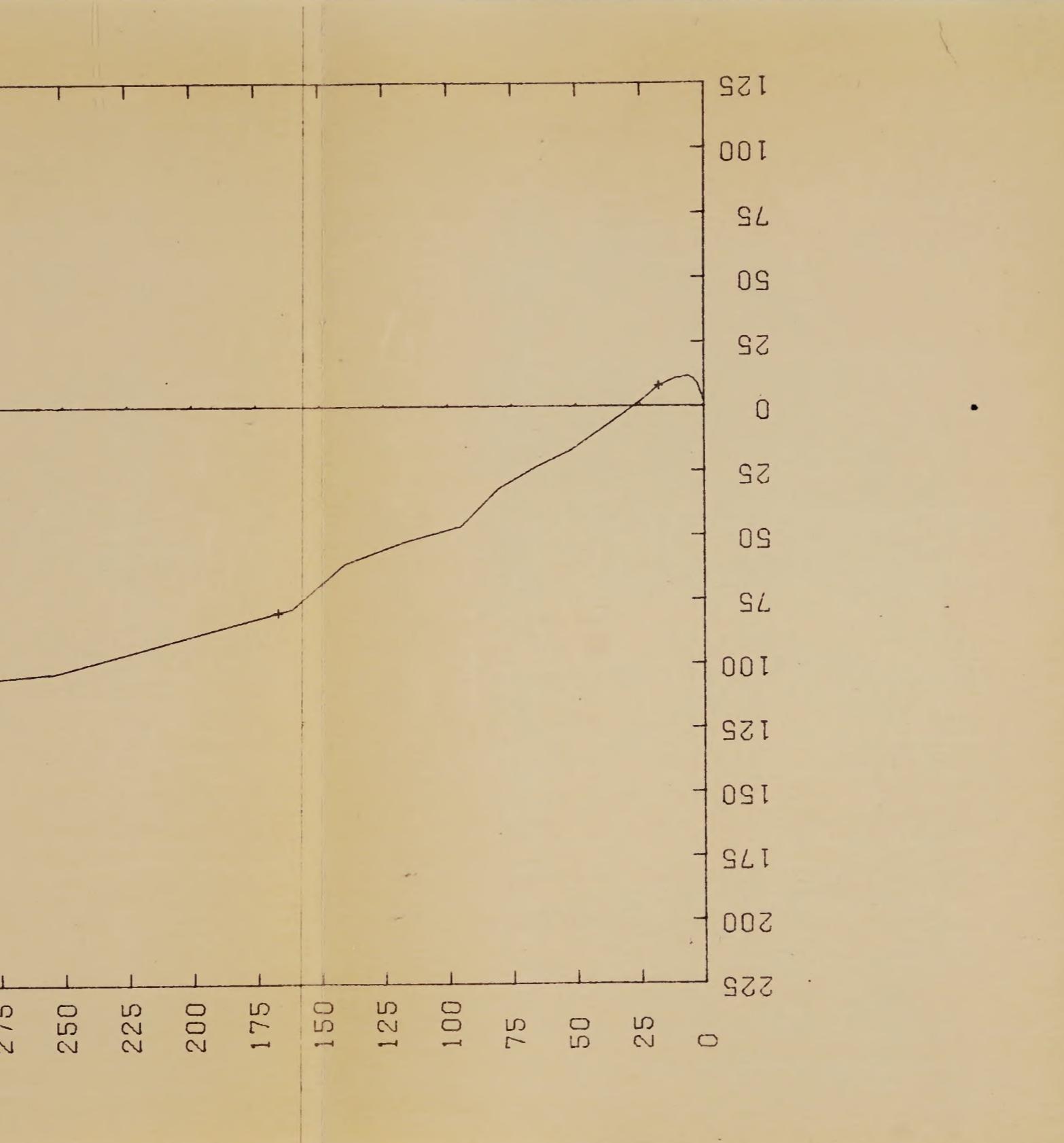
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326.86 N

N 16.39 W
340.71 FT.

96.17 W
326.86 N

N 16.39 W
340.71 FT.



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No. 103
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4-ARM CALIPER
AND ORIENTATION LOG

FILE NO.	COMPANY ESI DRILLING CO. (For U.S.B.M.)		
ROLL No.	WELL PILOT HOLE - X		
TO	FIELD WILDCAT		
COUNTY	RIO BLANCO	STATE	COLORADO
TIGHT HOLE	505 E/WL	1646 N/SL	Other Services DIFF. TEMP CDL-GR DIFL
LOCATION:	SEC 29	TWP 1S	RGE 97W
Permanent Datum GROUND LEVEL K.B. 4		Elev. 6284	Elevations: KB 6200 DF GL 6284
Date	10-25-76		
Run No.	ONE		
Depth-Driller	2531		
Depth-Logger	2524		
Bottom Logged Interval	2521		
Top Logged Interval	200		
Casing-Driller	8 5/8 @ 156		
Casing-Logger	NOT LOGGED		
Bit Size	6 1/4		
Type Fluid in Hole	GEL		
Density and Viscosity	8.5+	38	
pH and Fluid Loss	8.5+	6.0 cc	cc
Source of Sample	FLOW LINE		
Rm @ Meas. Temp.	•21	@ 48 °F	
Rm @ BHT	•09	@ 113 °F	
Magnetic Declination	15° E		
Tool Type	1006		
Tool Number	24348-15		
Pad Type	FOC-SWNAL		
Equip. Location	RS		
Computed By	---		
Recorded By	A. ALEXY		
Witnessed By	MR. SNOW		

THIS HEADING AND LOG CONFORMS TO API RECOMMENDED STANDARD PRACTICE RP. 31

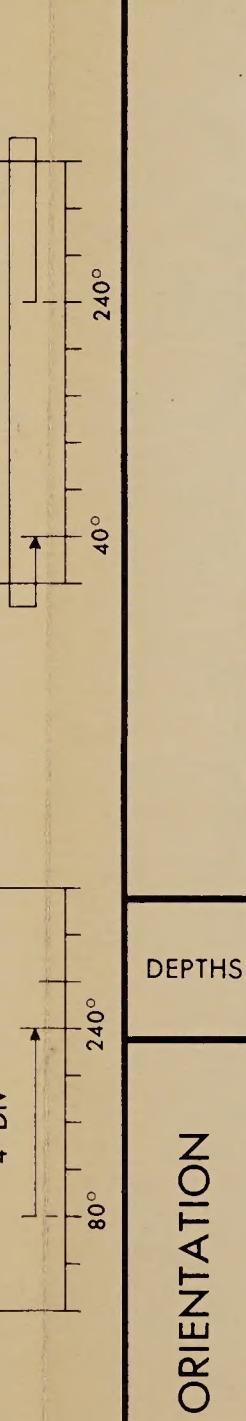
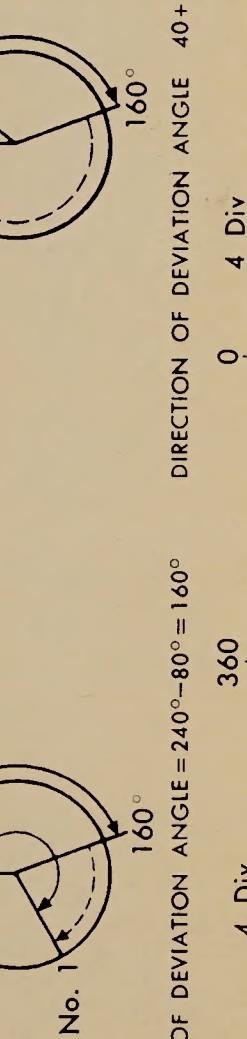
REMARKS	Equipment Used
	Series No. 1006
	Run No. ONE
	S.O. 54922
	Tool No. 24348-15
	Elec. No. 24348-12
	Panel No. 30330
Run No.	1
Data Logging Unit	27-60008
Analog Panel No.	30330
Digital Panel No.	
Correlated By	
Plotted By	

DIRECTION OF DEVIATION ANGLE

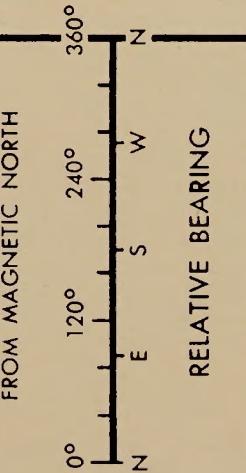
REFERRED TO MAGNETIC NORTH

MEASURE TO THE RIGHT FROM DASHED TRACE (RELATIVE BEARING) TO SOLID TRACE (AZIMUTH OF NO. 1 PAD) COUNTING 40° PER DIVISION

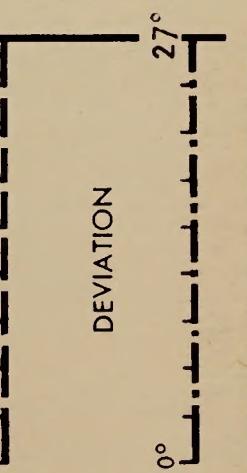
EXAMPLES: DIRECTION OF DRIFT = 160°



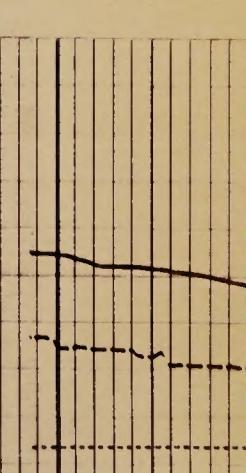
ORIENTATION

AZIMUTH NO. 1 ELECTRODE
FROM MAGNETIC NORTH

RELATIVE BEARING



DEVIATION



200

30

10

5

1

0

-5

-10

-15

-20

-30

-40

-50

-60

-70

-80

-90

-100

-110

-120

-130

-140

-150

-160

-170

-180

-190

-200

DIAMETER OF HOLE IN INCHES 2 1/2

1 & 3

2 & 4

5

10

15

20

25

30

35

40

45

50

55

60

65

70

75

80

85

90

95

100

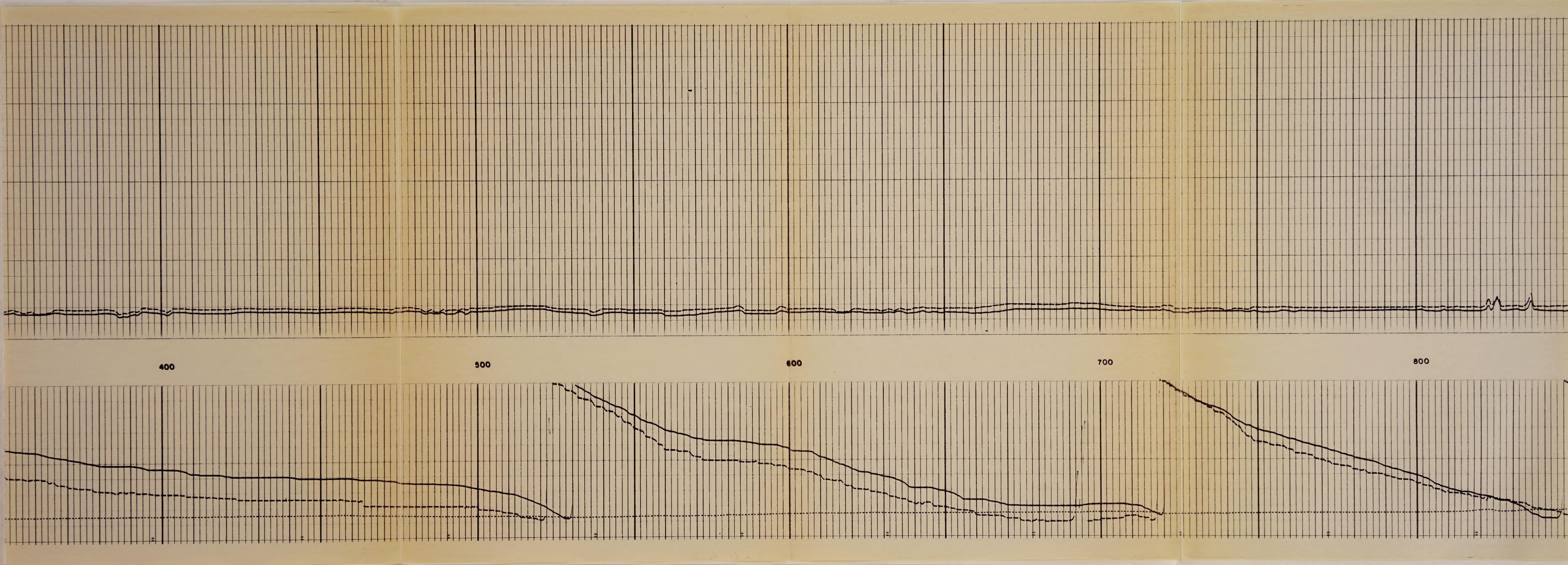
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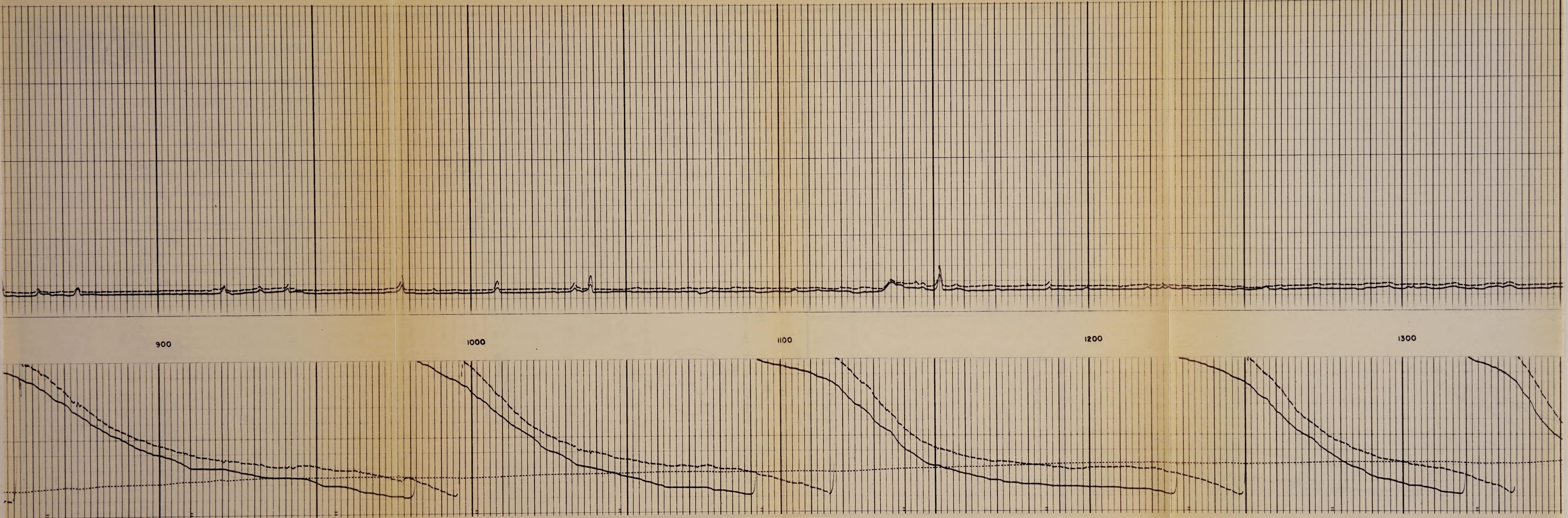
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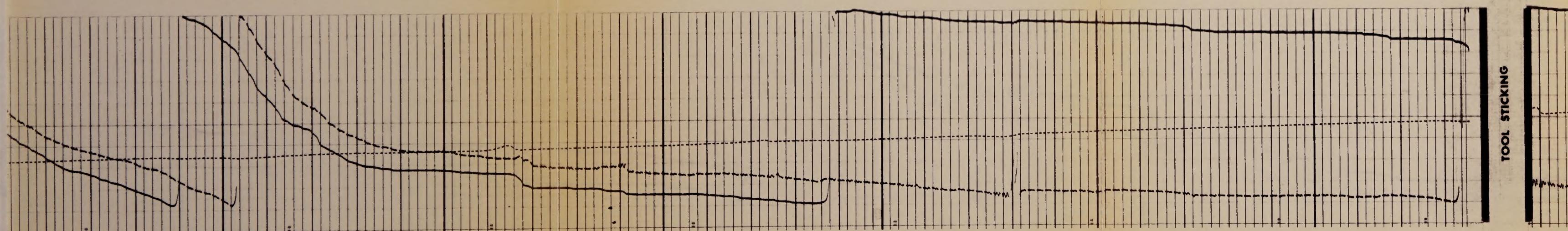
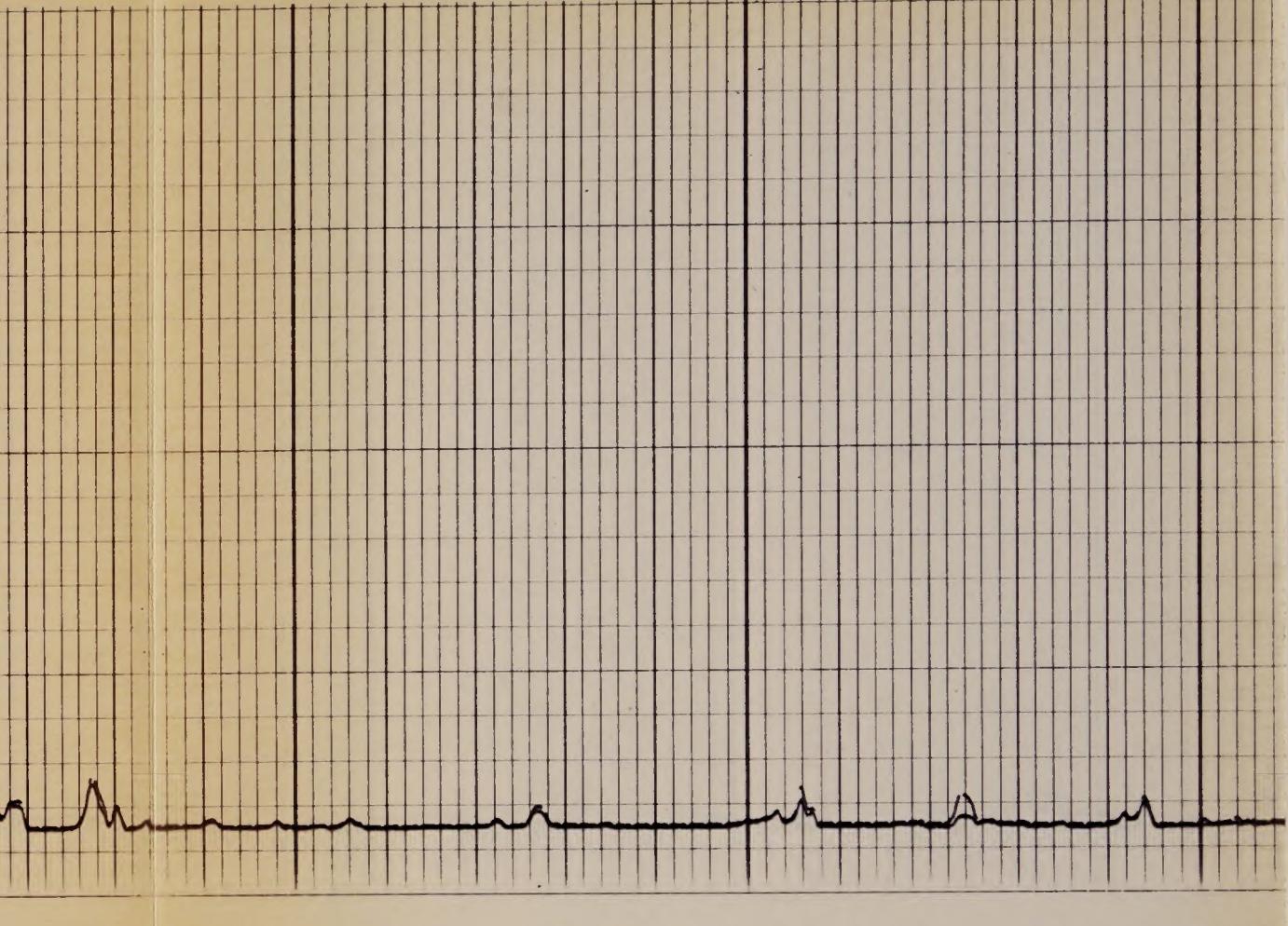
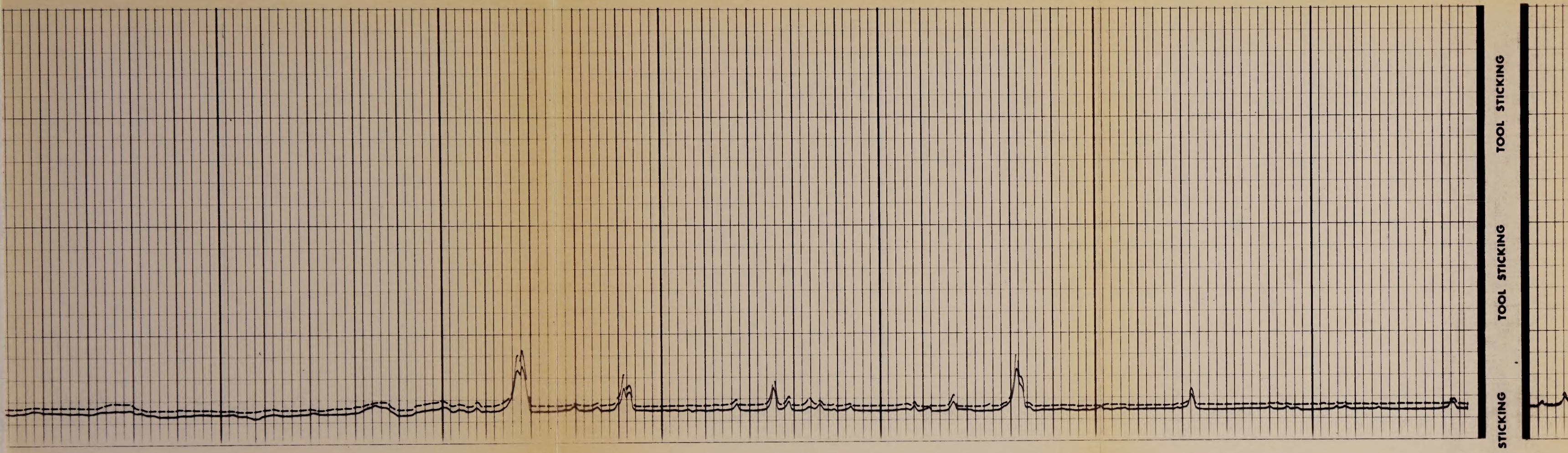
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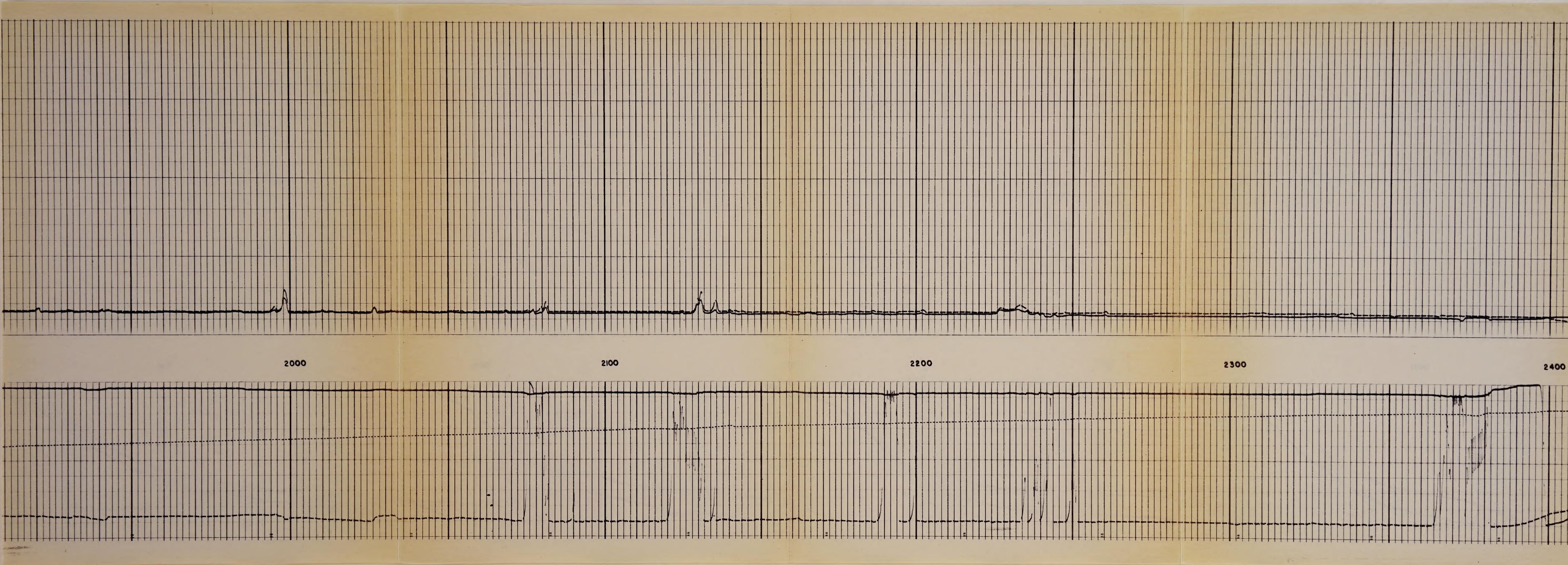
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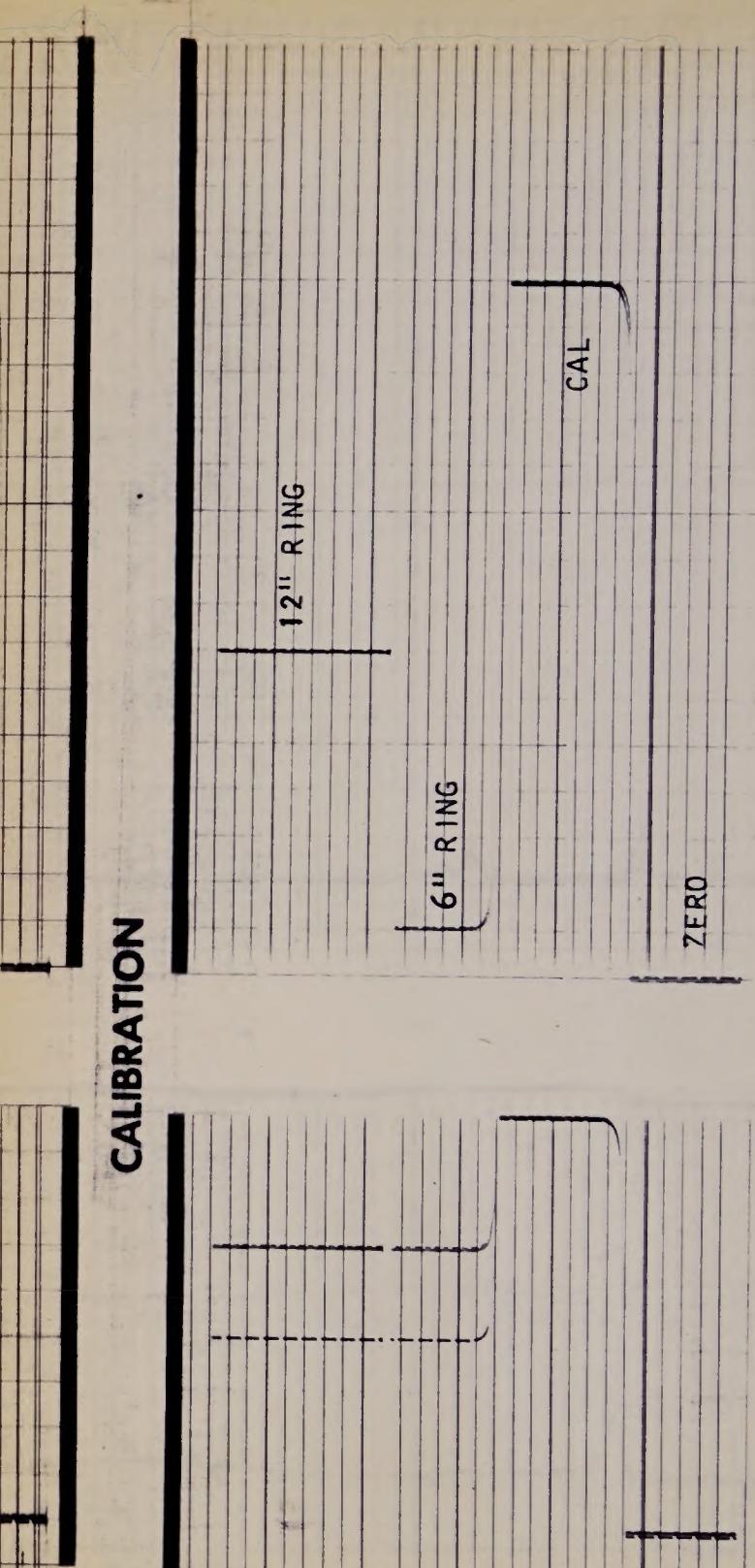
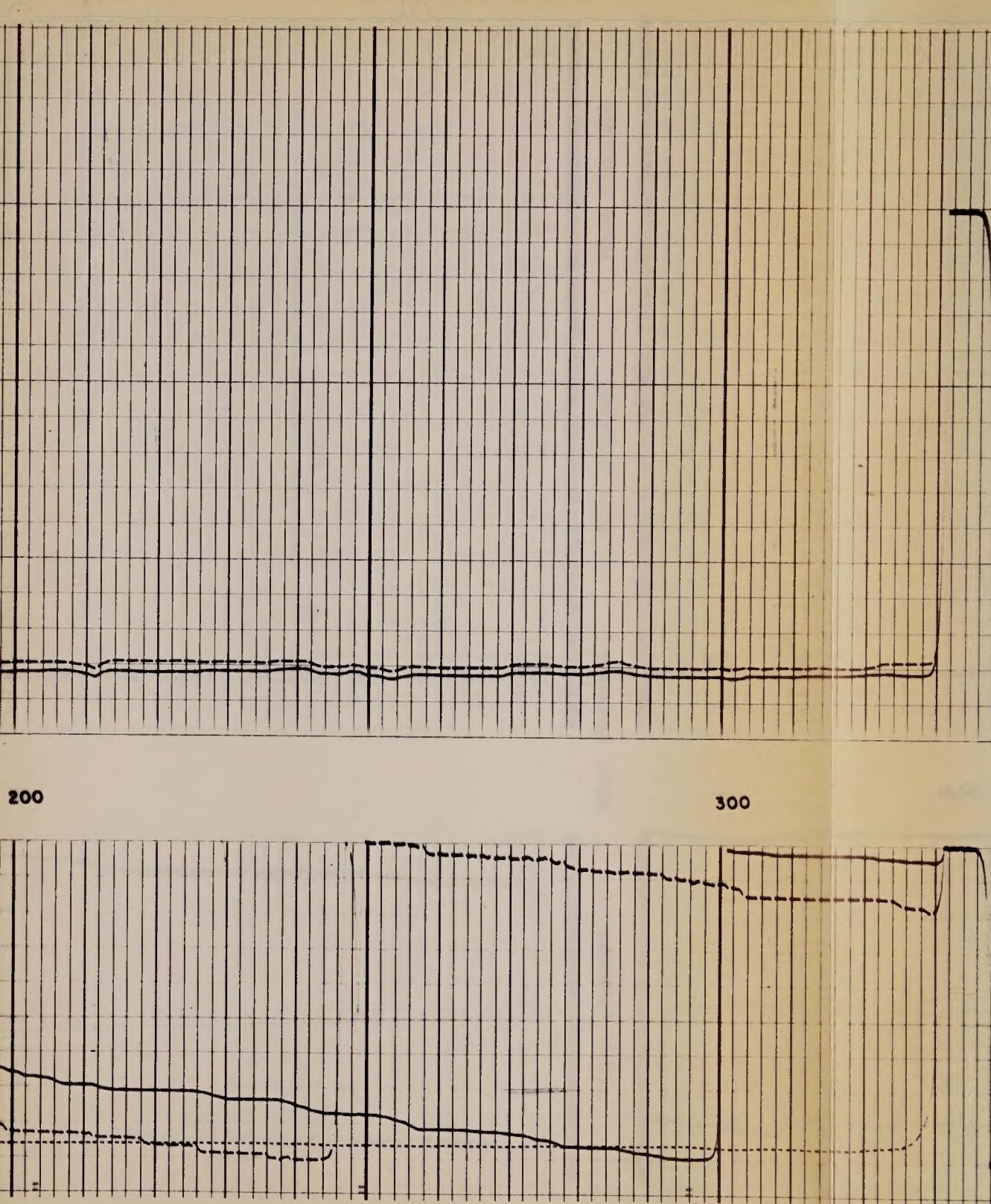
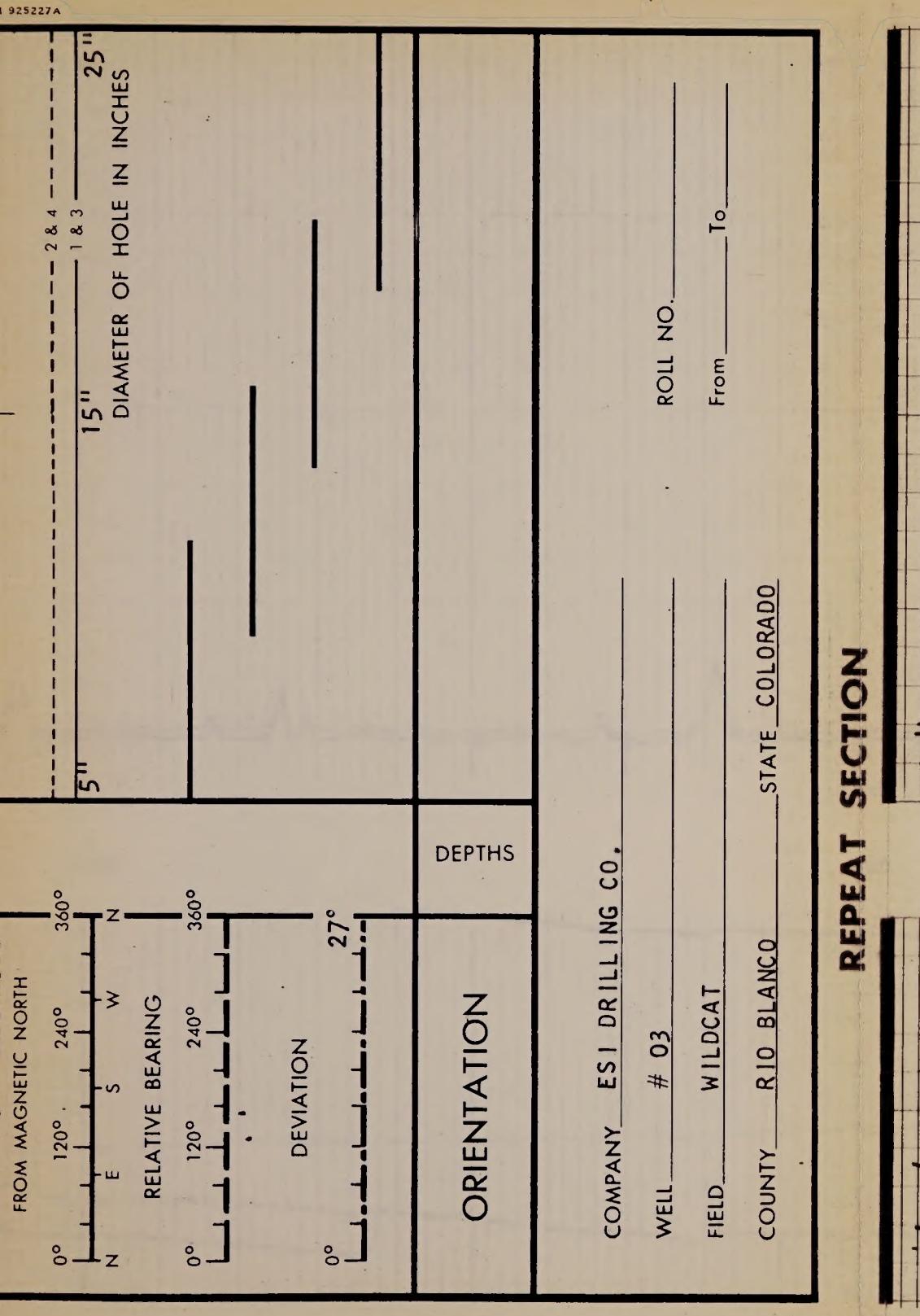
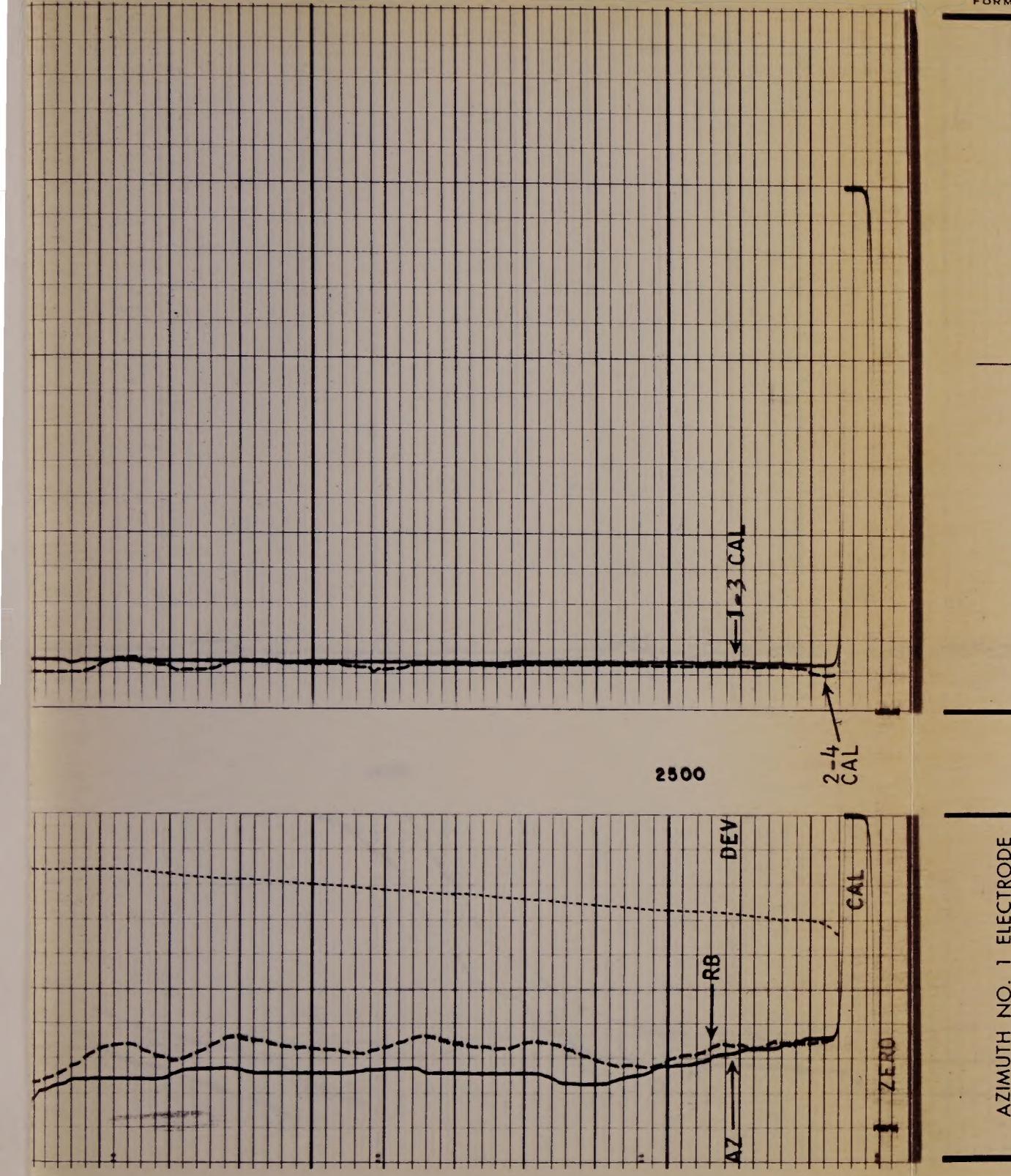
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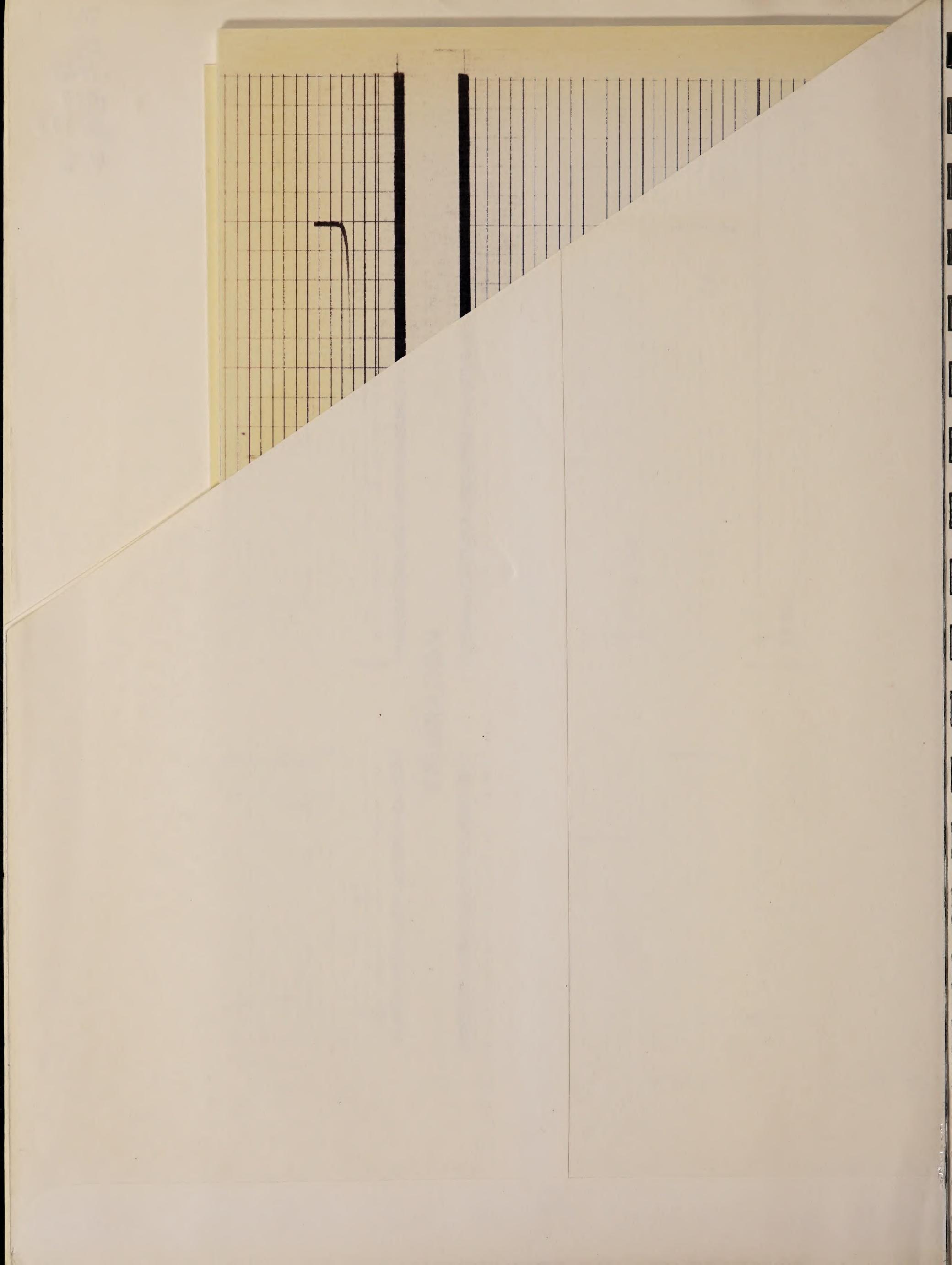
CROWN CITY, COLORADO

STATE

CITY

ZIP

CITY



COMPENSATED

Densilog





COMPENSATED
Densilog

FILE NO.

COMPANY ESI DRILLING CO.

WELL PILOT HOLE "X"

FIELD WILDCAT

COUNTY RIO BLANCO STATE COLORADO

LOCATION:

420 E/WL 1650 N/SL
6 TH. P.M.
SEC 29 TWP 1S RGE 97W

Other Services
DIFL
DIFF. TEMP
DIR. SURVEY
4-ARM CAL.

Permanent Datum GROUND LEVEL

Elev. 6284

Elevations:
KB 6288

Log Measured from K.B.

4 Ft. Above Permanent Datum

Drilling Measured from K.B.

DF 6284

GL 6284

Date 10-26-76

Run No. ONE

Depth-Driller 2531

Depth-Logger 2531

Bottom Logged Interval 2530

Top Logged Interval 158

Casing-Driller 8 5/8 @ 156

@

@

@

Casing-Logger 158

Bit Size 6 1/4

Type Fluid in Hole GEL

Density and Viscosity 8.5+ 38

pH and Fluid Loss 8.5 6.0 cc

Source of Sample FLOWL INF

Rm @ Meas. Temp. 21 @ 48 °F

@ °F

@ °F

@ °F

@ °F

@ °F

Rmf @ Meas. Temp. 18 @ 43 °F

@ °F

@ °F

@ °F

@ °F

Rmc @ Meas. Temp. 36 @ 50 °F

@ °F

@ °F

@ °F

Source of Rmf and Rmc MEAS MEAS

Rm @ BHT 09 @ 113 °F

@ °F

@ °F

@ °F

Time Since Circ. 14 HRS.

Max. Rec. Temp. Deg. F. 113 °F

Equip. No. and Location 6110 RS

Recorded By WHITE-MILHGAN

Witnessed By MR. SNOW

FOLD HERE

Remarks:

Equipment Used					
Series No.	2208	1305			
Run No.	ONE	ONE			
S.O.	24923	24923			
Tool No.	29226	31986			
Elec. No.	29226	31986			
Panel No.	33038	32564			

Densilog					
Run No.	ONE	ONE			
Tool Model No.	1305				
Serial No.	31984				
Diam.	3 5/8				
Detector Model No.	D6G4				
Type	SC INT.				
Length	6"				
Dist. to Source	12"				
General					
Host Truck No.	6110				
Auxiliary Equipment					

Logging Data					
General					
Run No.					
Depths					
From					
To					
Speed					
ft./Min.					
REC.					
CCTC					
2.0-3.0					
-.5-.5					

Gamma Ray					
Run No.	ONE				
Tool Model No.	1305				
Serial No.	31984				
Diam.	3 5/8				
Detector Model No.	D6G4				
Type	SC INT.				
Length	6"				
Dist. to Source	12"				
General					
Host Truck No.	6110				
Auxiliary Equipment					

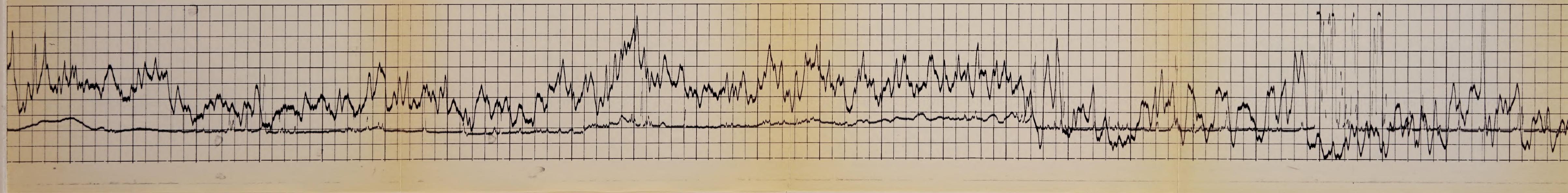
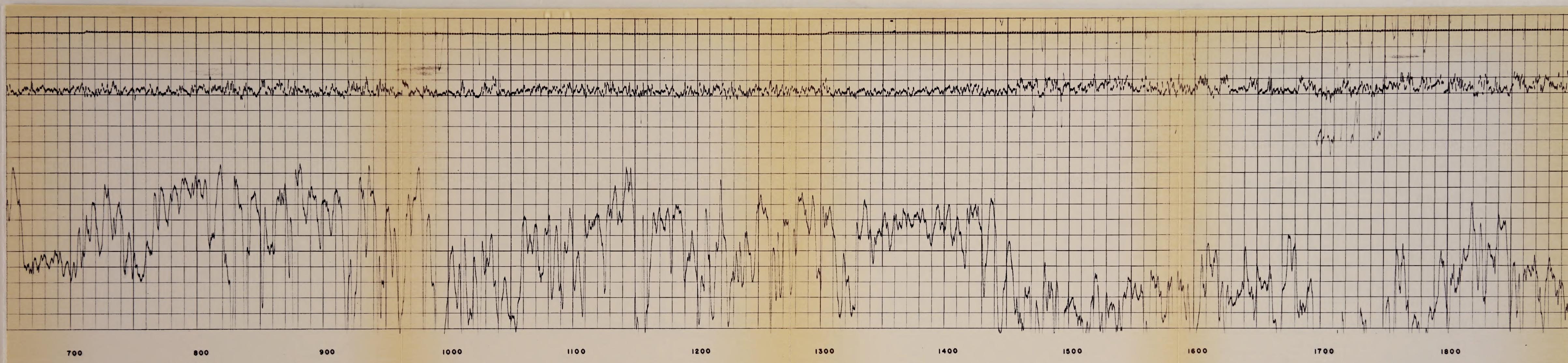
Gamma Ray					
Run No.	ONE				
Tool Model No.	1305				
Serial No.	31984				
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Detector Model No.	D6G4				
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Length	6"				
Dist. to Source	12"				
General					
Host Truck No.	6110				
Auxiliary Equipment					

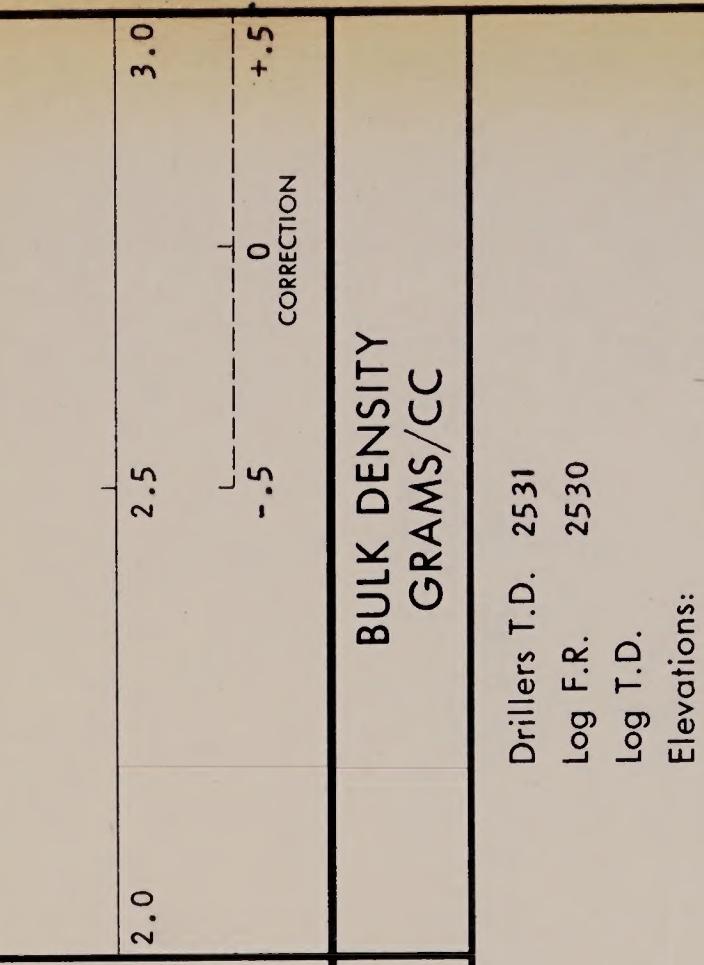
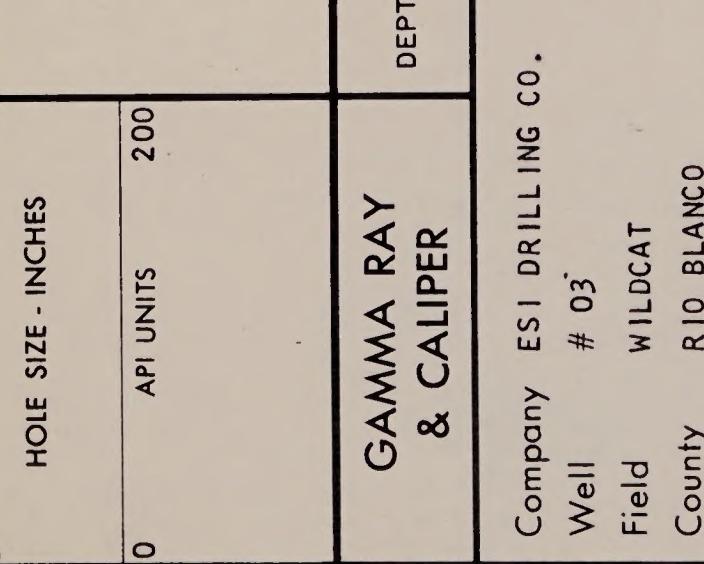
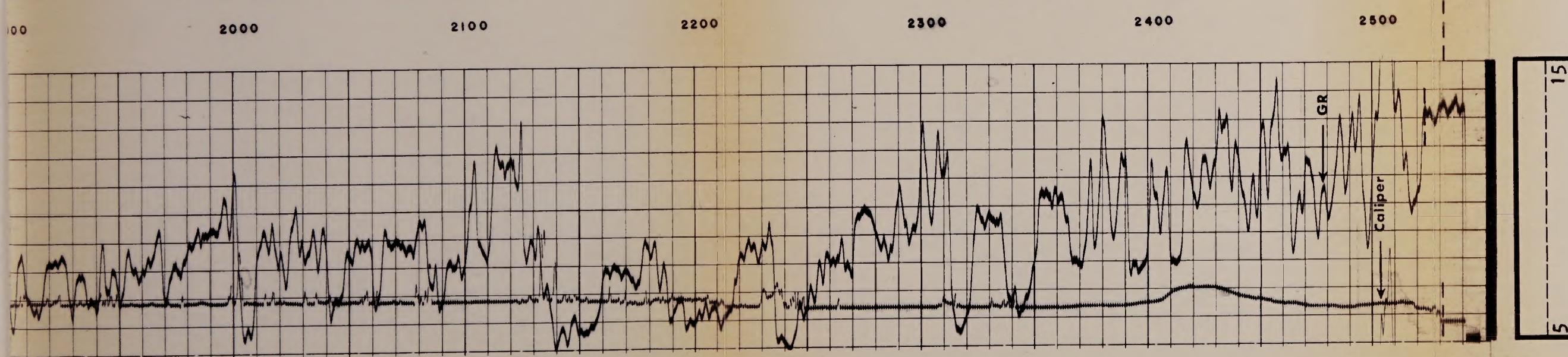
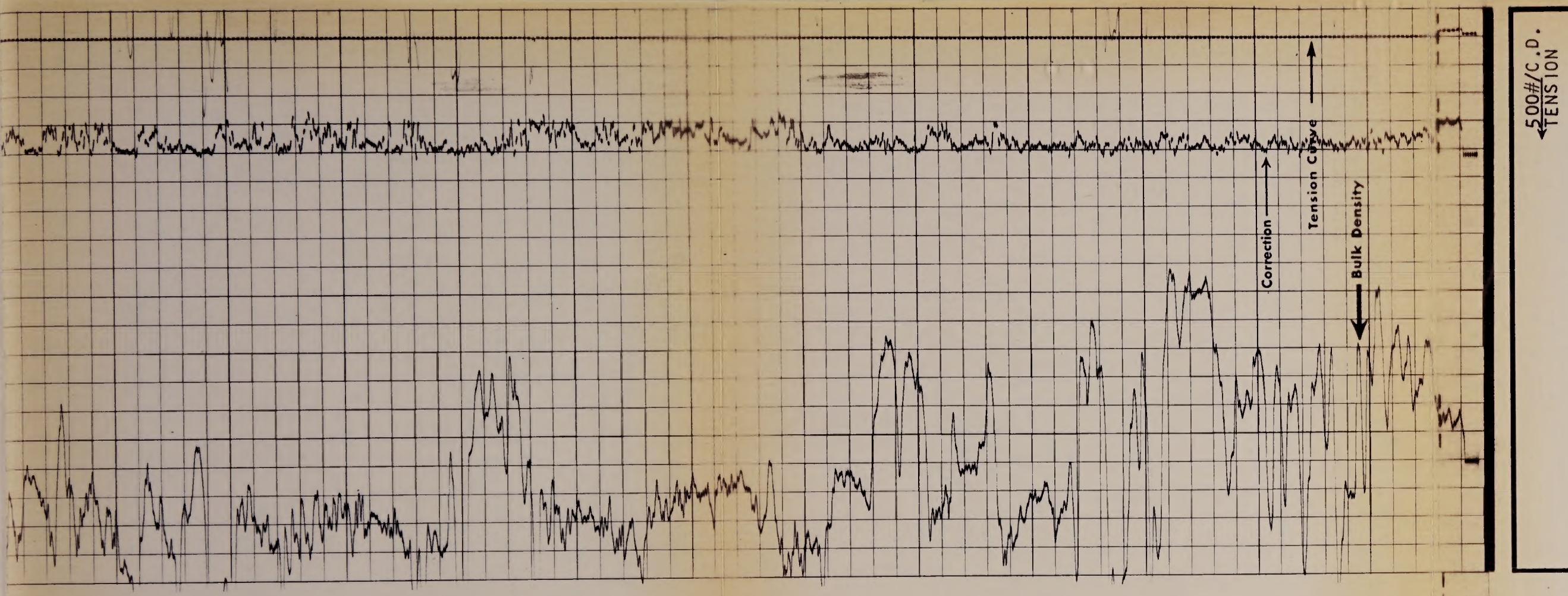
Gamma Ray					
Run No.	ONE				
Tool Model No.	1305				
Serial No.	31984				
Diam.	3 5/8				
Detector Model No.	D6G4				
Type	SC INT.				
Length	6"				
Dist. to Source	12"				
General					
Host Truck No.	6110				
Auxiliary Equipment					

Gamma Ray					
Run No.	ONE				
Tool Model No.	1305				
Serial No.	31984				
Diam.	3 5/8				
Detector Model No.	D6G4				
Type	SC INT.				
Length	6"				
Dist. to Source	12"				
General					
Host Truck No.	6110				
Auxiliary Equipment					

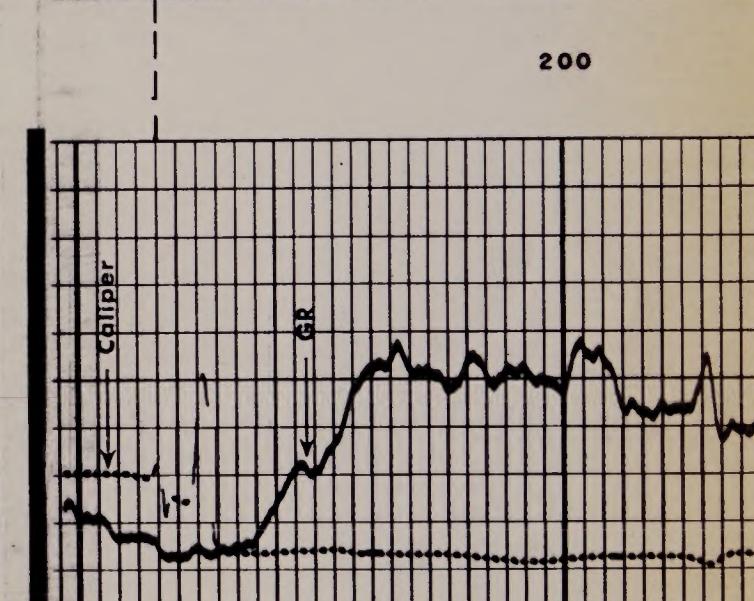
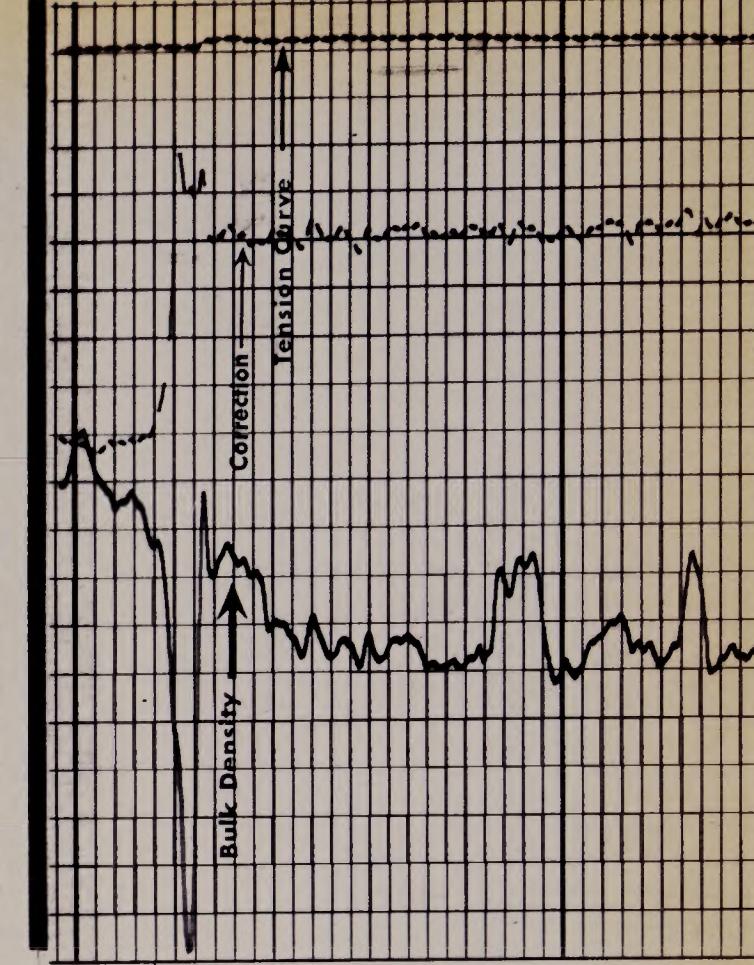
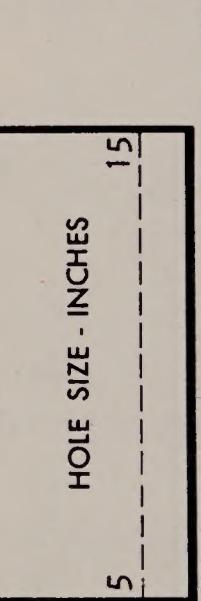
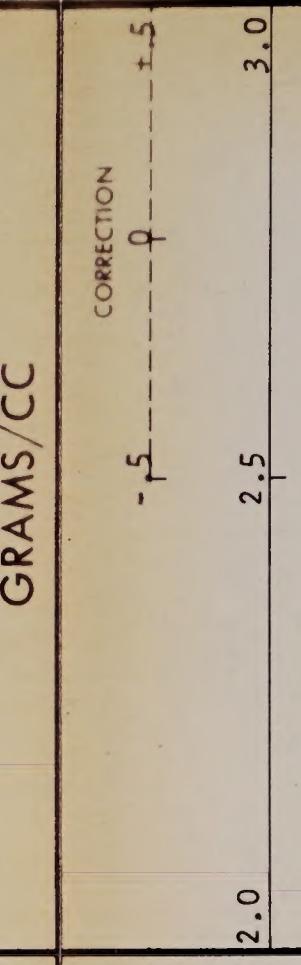
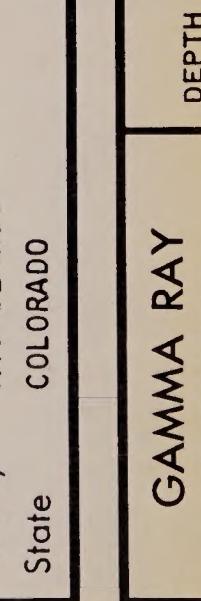
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Run No.	ONE				
Tool Model No.	1305				
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Length	6"				
Dist. to Source	12"				
General					
Host Truck No.	6110				
Auxiliary Equipment					

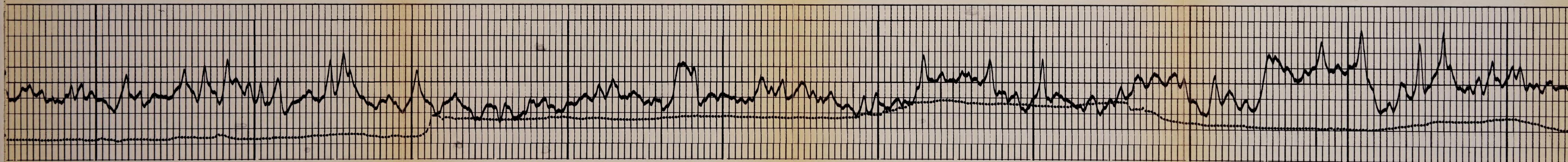
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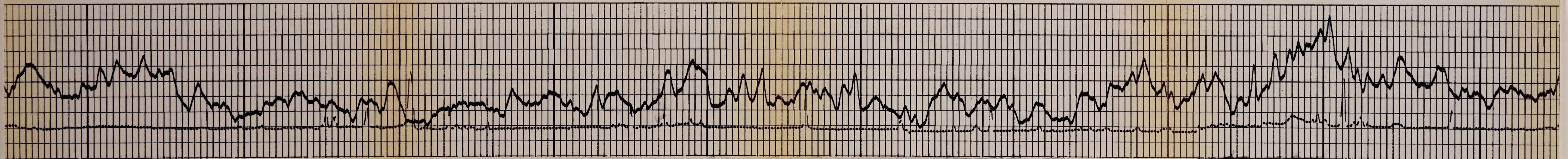
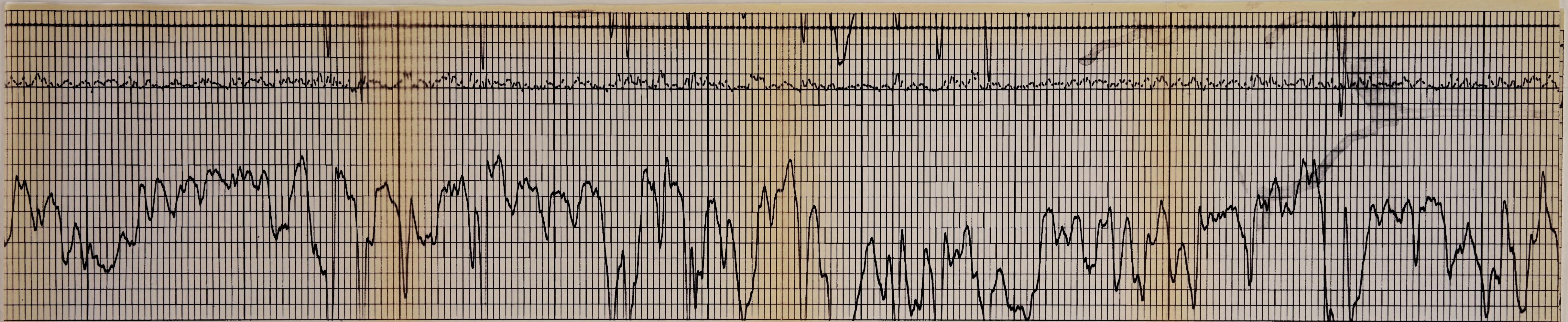


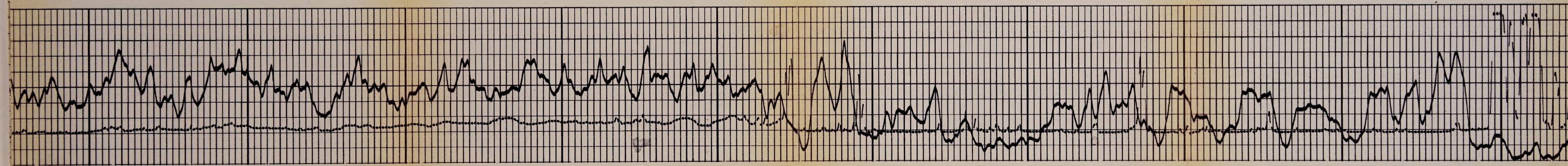
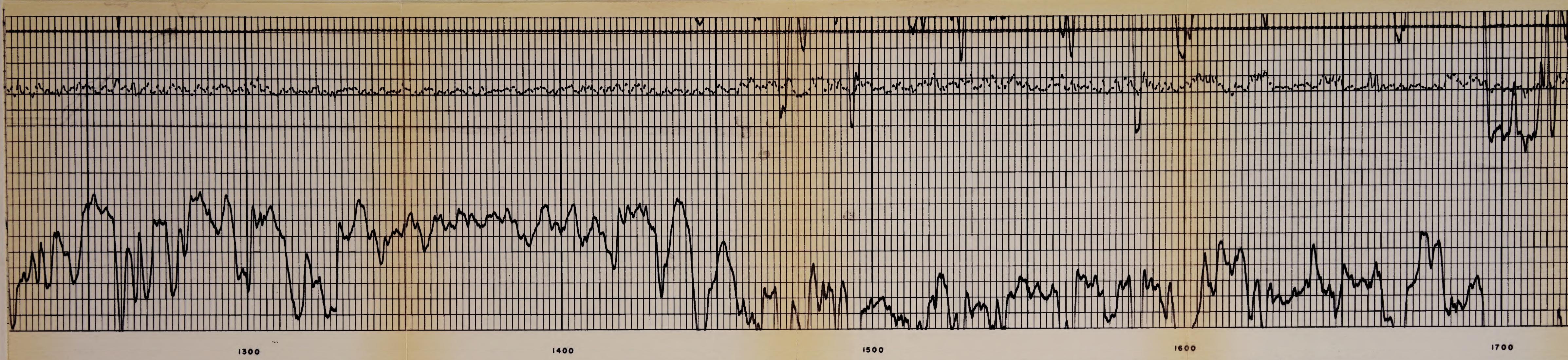


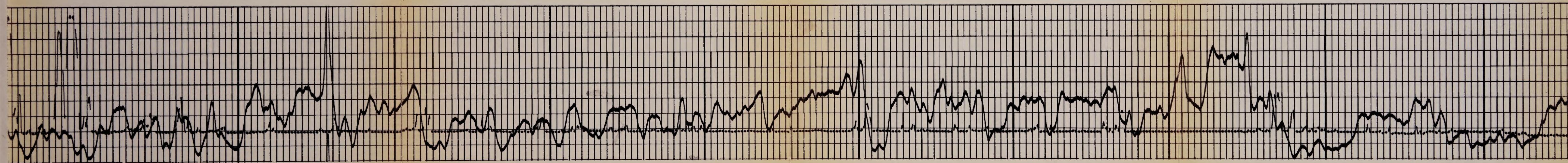
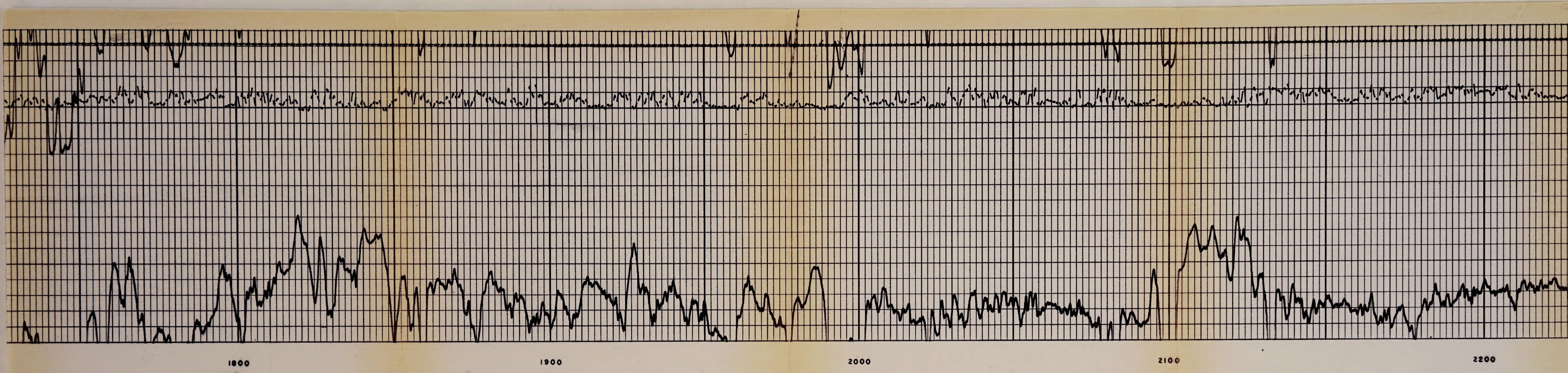
Drillers T.D. 2531
Log F.R. 2530
Log T.D.
Elevations:
K.B. 6288 D.F. G.L. 6284

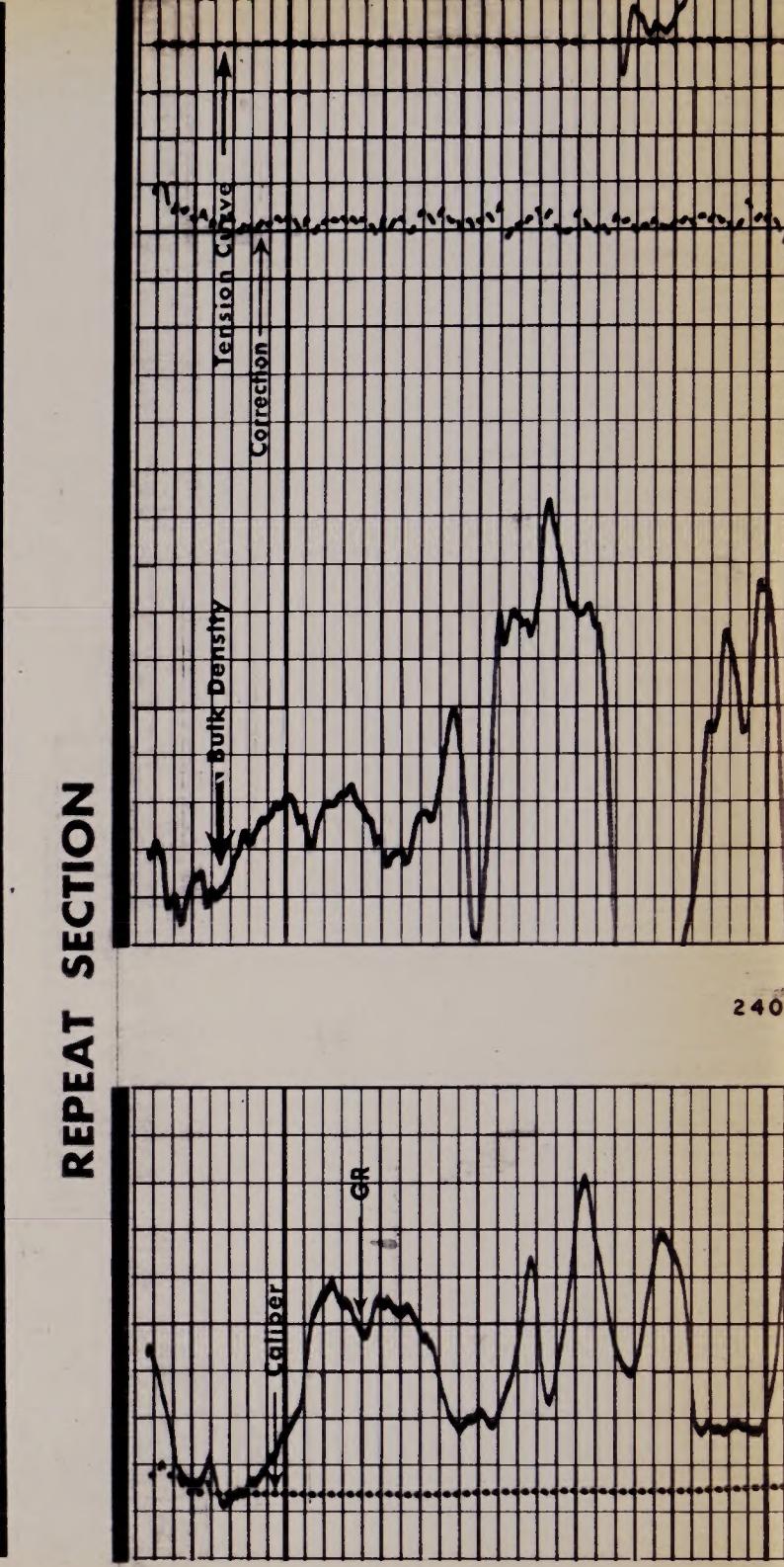
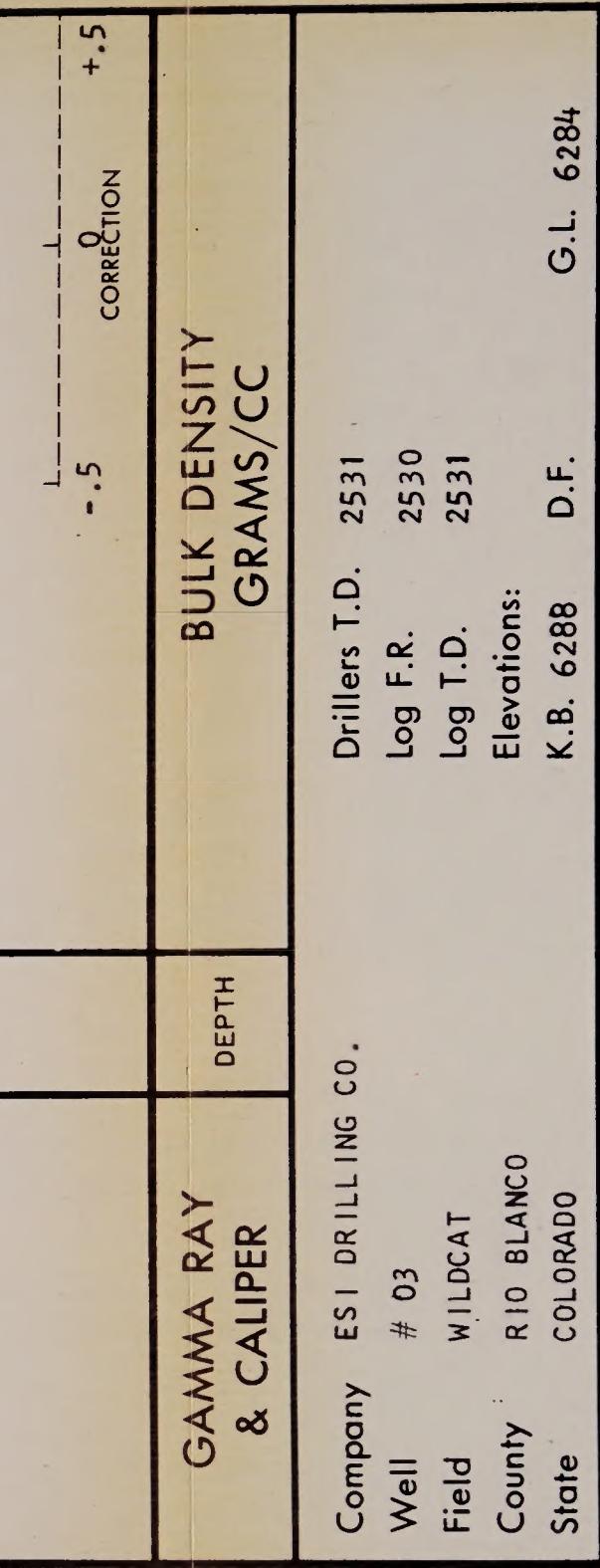
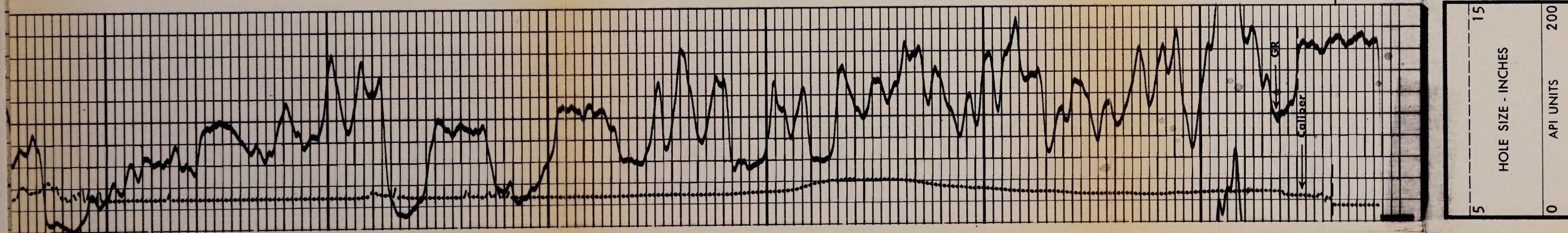
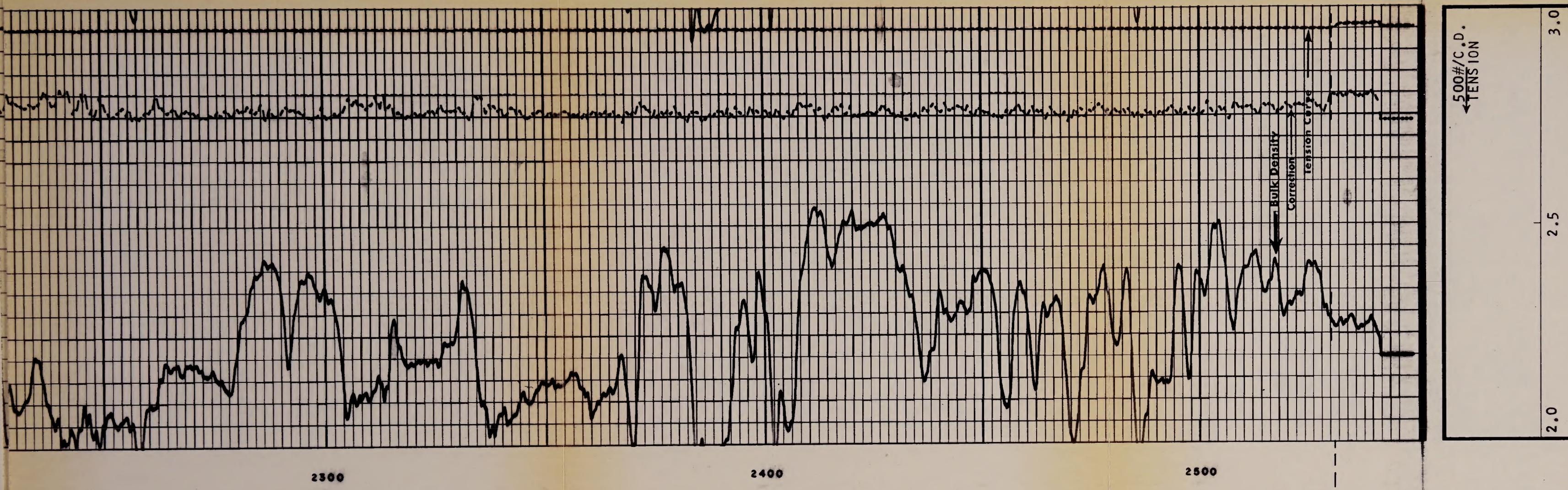


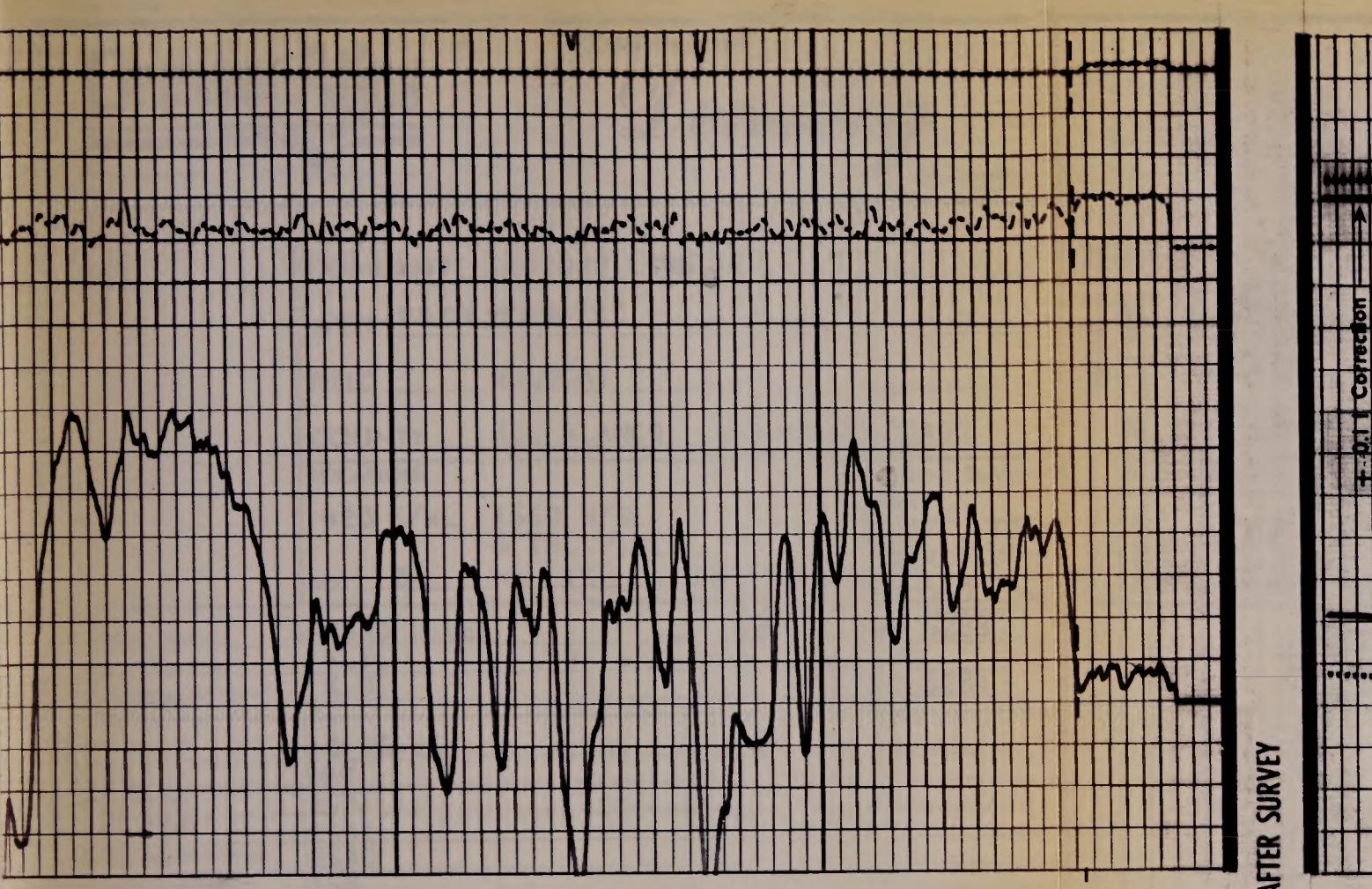




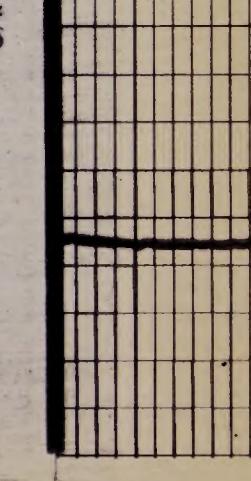
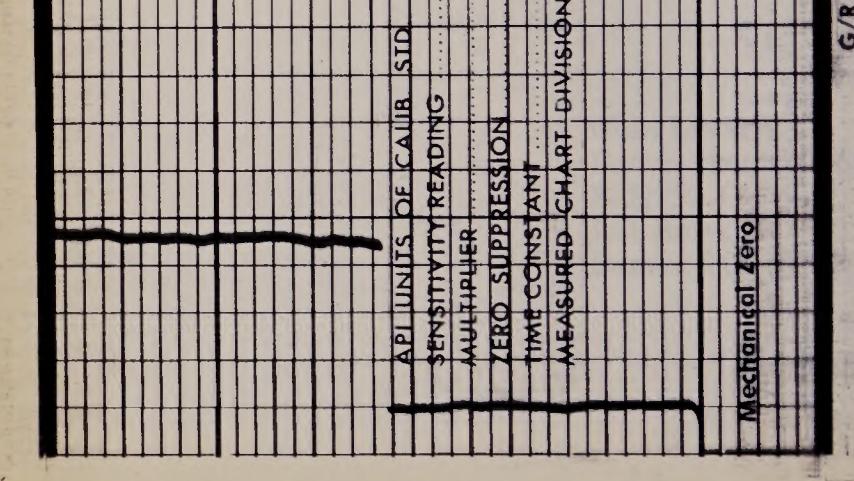
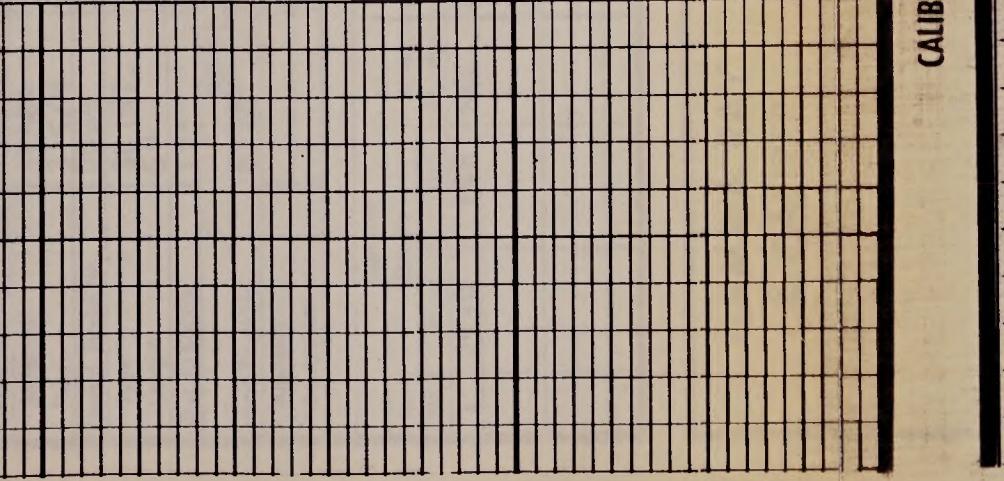
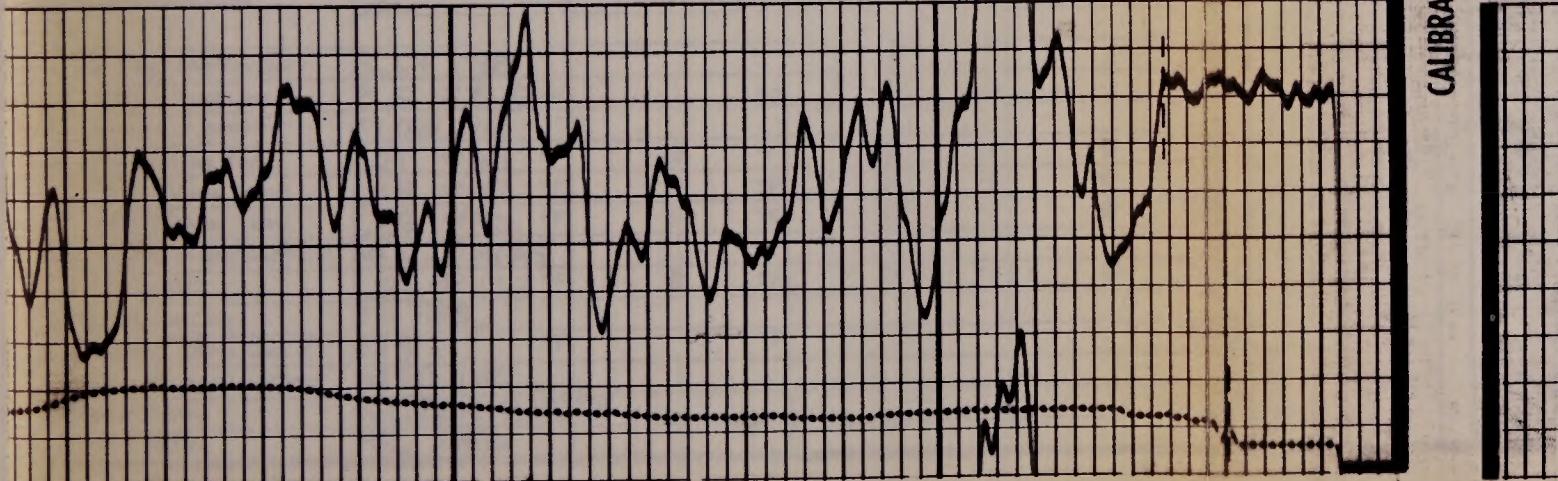
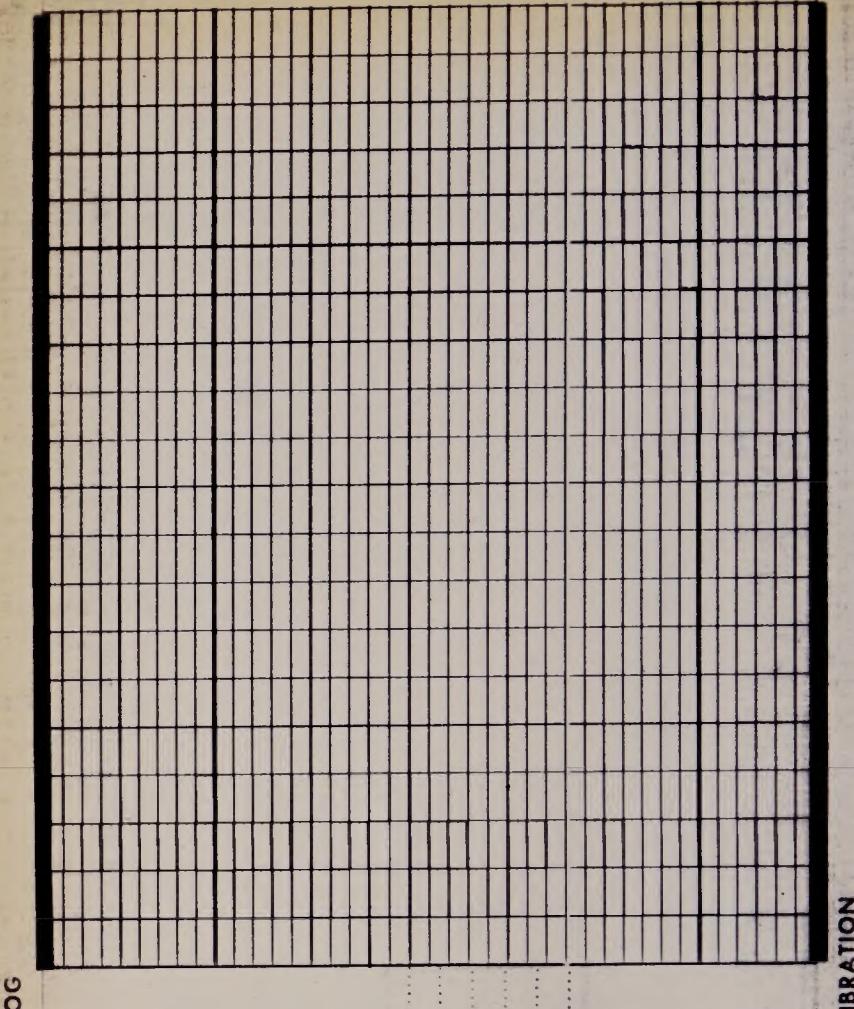
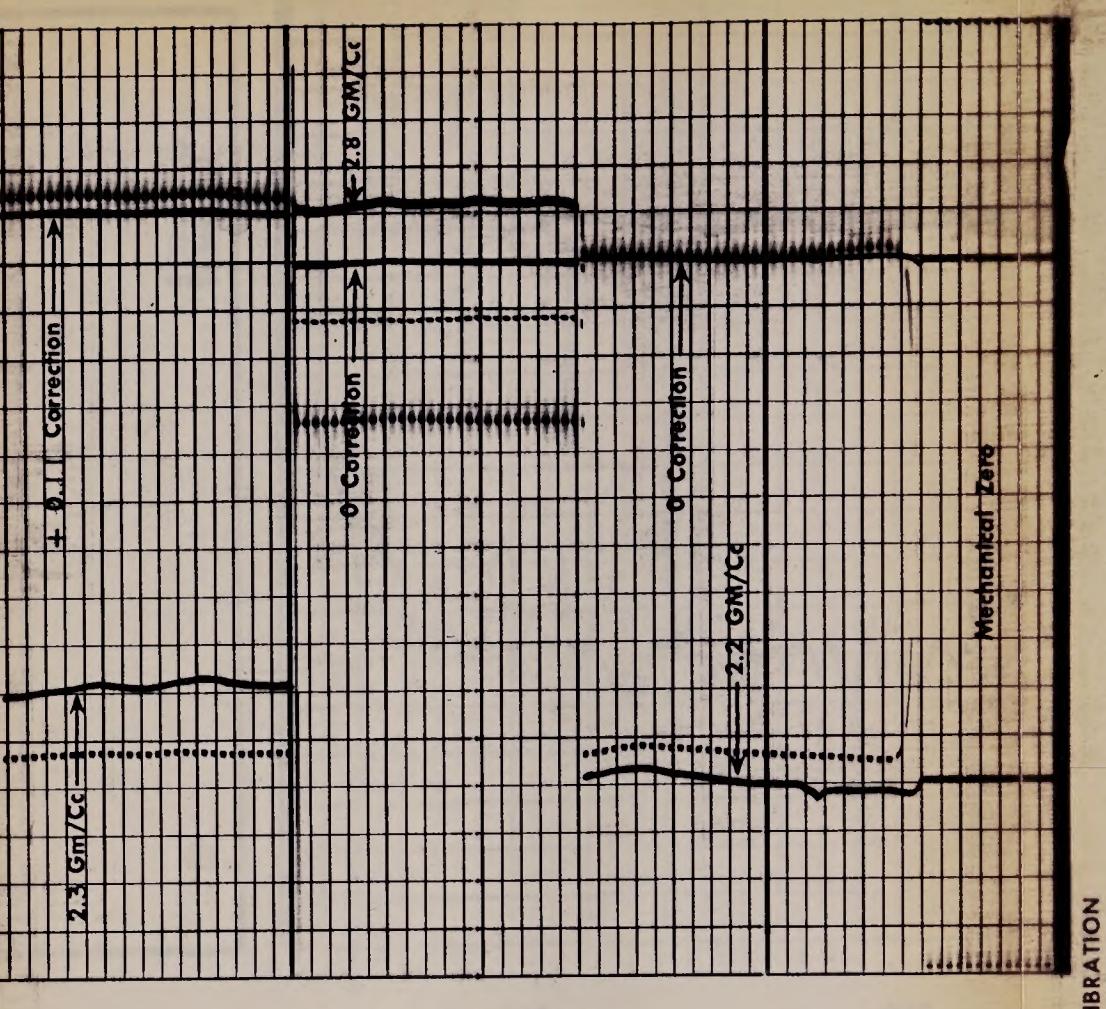
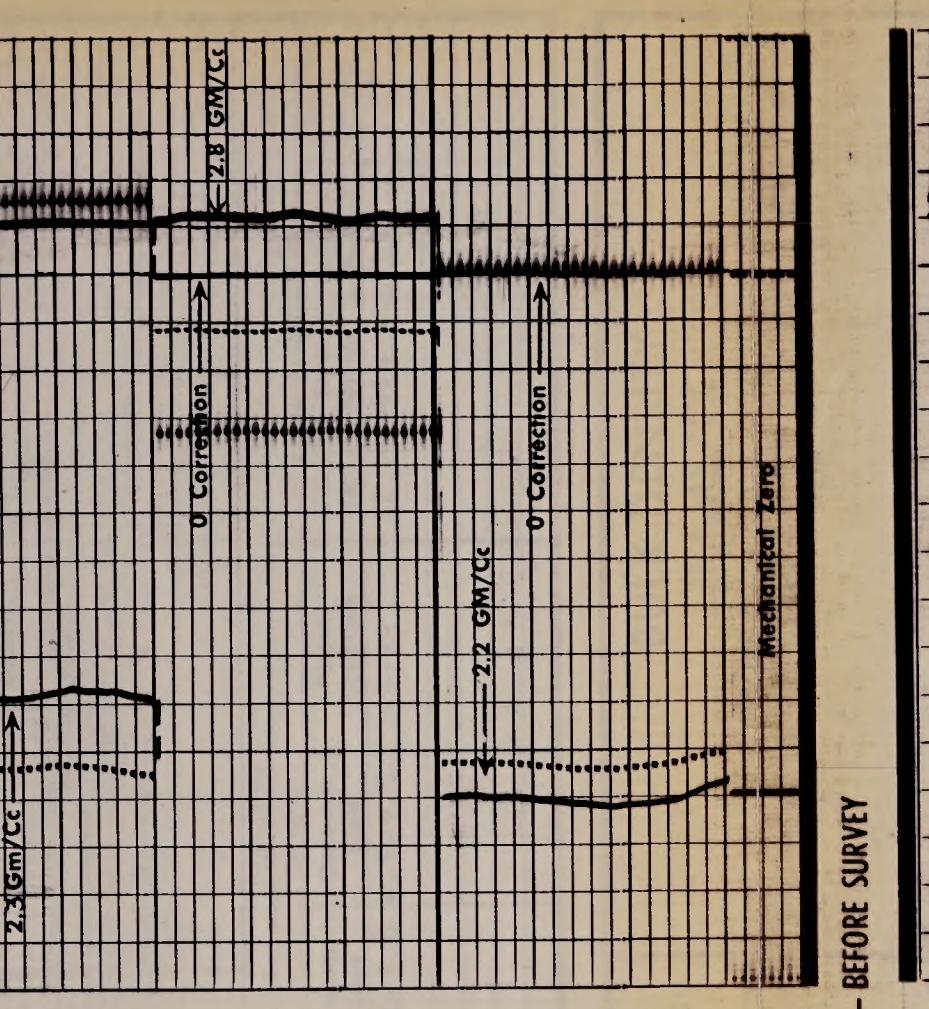








CALIBRATION — AFTER SURVEY

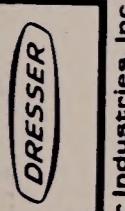


API UNITS OF CALIB STD	185
SENSITIVITY READING	200
MULTIPLIER	X1
ZERO SUPPRESSION	0
TIME CONSTANT	3
MEASURED CHART DIVISIONS	3.6

Mechanical Zero



WIRELINE SERVICES



DRESSER

Division of Dresser Industries, Inc.

#4971221

ID: 88075059

TN
23
M56
1977
No. 103
V.2

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#4971221

ID: 88075059

Atlas

Differential

*Dual Induction
Cased Log*

CORRELATION LOG



Dual Induction Focused Log

WITH LINEAR CORRELATION LOG

FILE NO.

COMPANY ESI DRILLING CO.

WELL PILOT HOLE "X"

TIGHT HOLE

FIELD WILDCAT

COUNTY RIO BLANCO STATE COLORADO

LOCATION:

420 E/WL 1650 N/SL
6 TH. P. M.
SEC 29 TWP 1S RGE 97W

Other Services
DIFF. TEMP
CDL-GR
DIR. SURVEY
4-ARM CAL

Permanent Datum

GROUND LEVEL

Elev.

6284

KB

4

Ft. Above Permanent Datum

Elevations:

6280

Log Measured from

K.B.

DF

Drilling Measured from

K.B.

GL

6284

Date 10-26-76

Run No. ONE

Depth-Driller 2531

Depth-Logger 2531

Bottom Logged Interval 2529

Top Logged Interval 158

Casing-Driller 85/8@ 156 @ @ @

Casing-Logger 158

Bit Size 6 1/4

Type Fluid in Hole GEL

@ @ @ @

Density and Viscosity 8.5+ 38

pH and Fluid Loss 8.5+ 6.0 cc

Source of Sample FLOWLINE

Rm @ Meas. Temp. 21 @ 48 °F @ °F @ °F @ °F

Rmf @ Meas. Temp. 18 @ 43 °F @ °F @ °F @ °F

Rmc @ Meas. Temp. 36 @ 50 °F @ °F @ °F @ °F

Source of Rmf and Rmc MEAS. MFAS.

Rm @ BHT 09 @ 113 °F @ °F @ °F @ °F

Time Since Circ. 11 HRS.

Max. Rec. Temp. Deg. F. 113 °F °F °F °F

Equip. No. and Location 6110 RS

Recorded By WHITE-MILHOAN

Witnessed By MR. SNOW

THIS HEADING AND LOG CONFORMS TO API RECOMMENDED STANDARD PRACTICE RP-31

FOLD HERE

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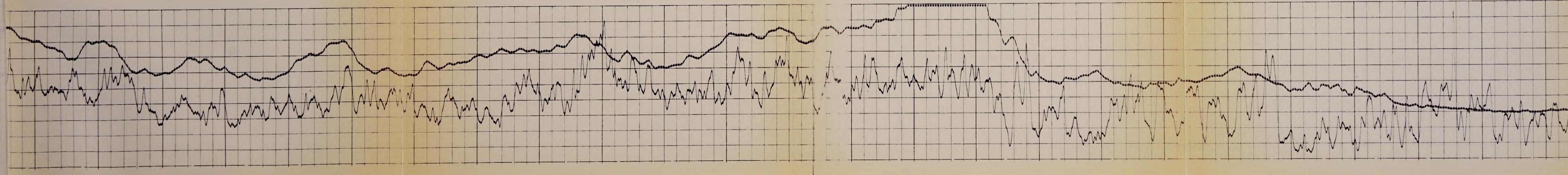
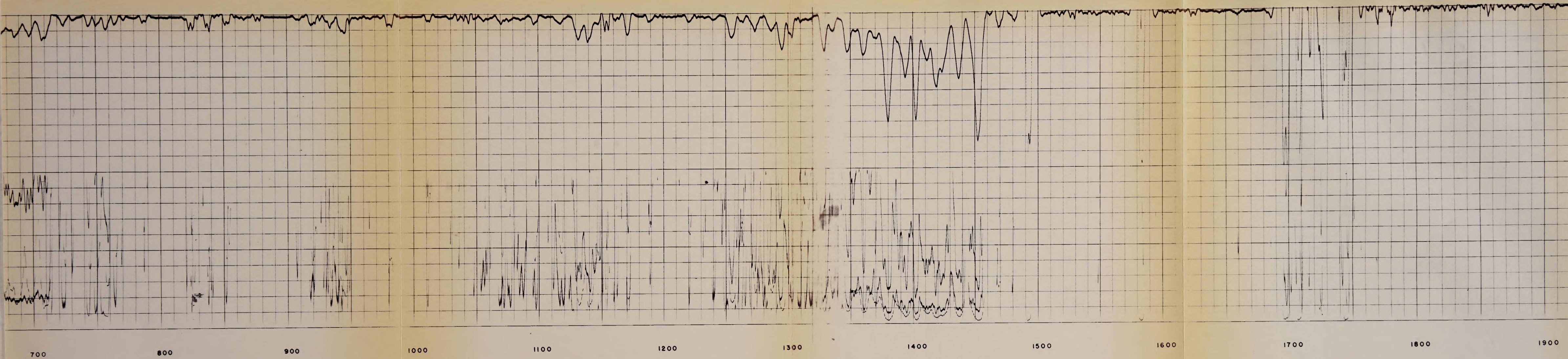
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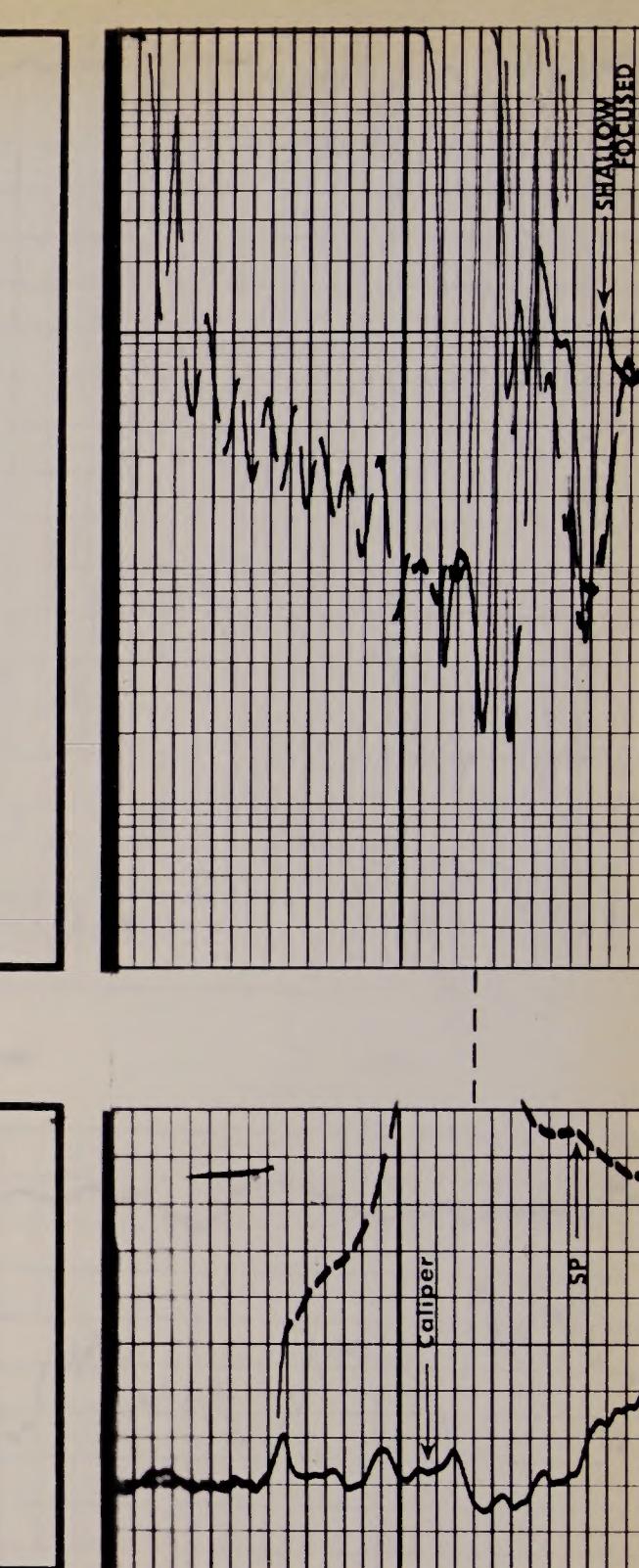
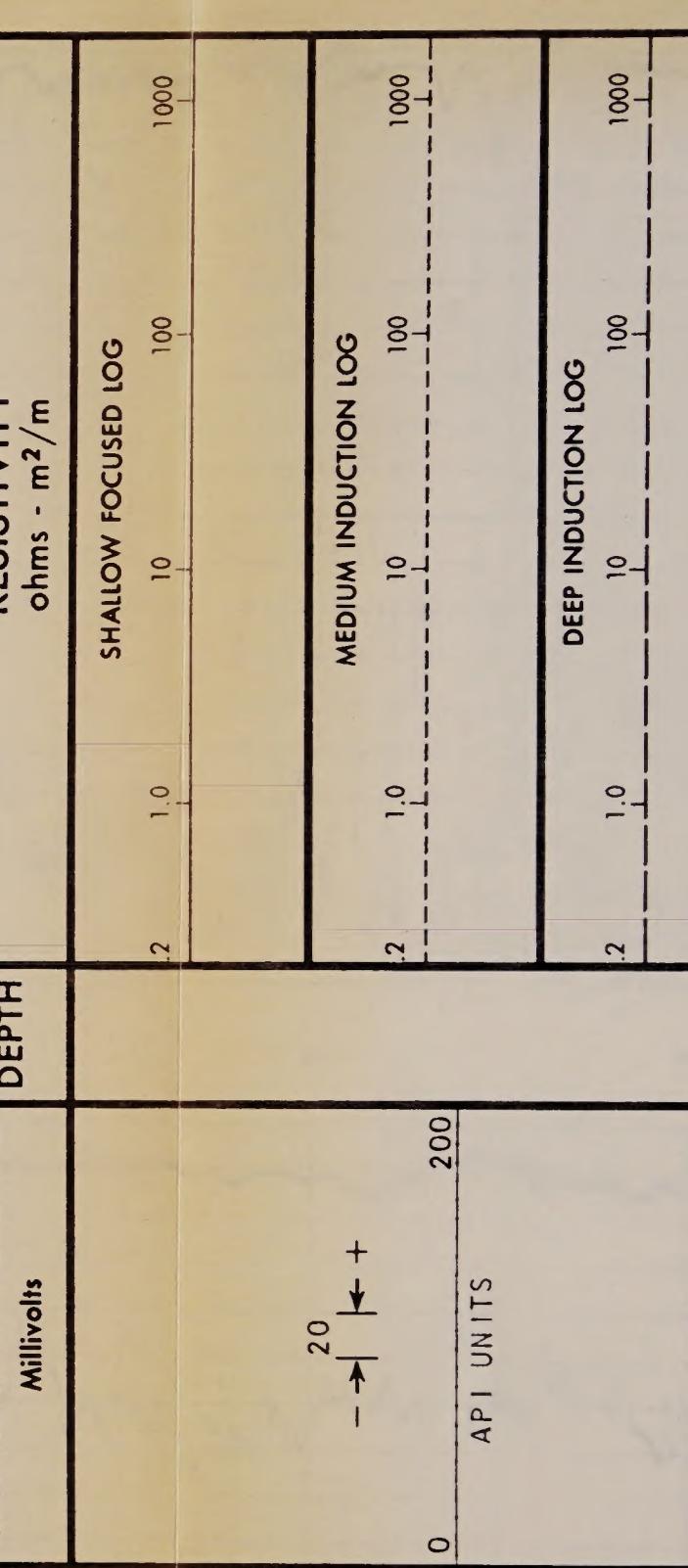
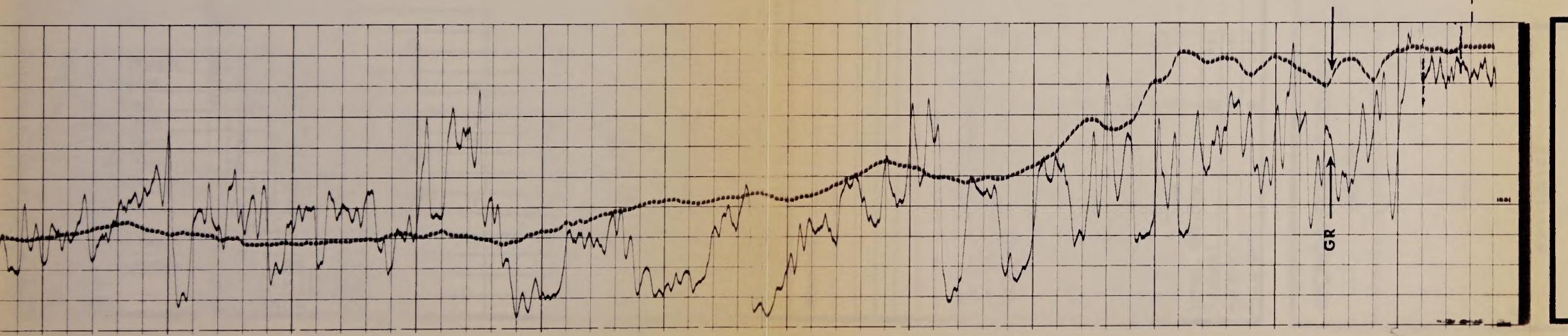
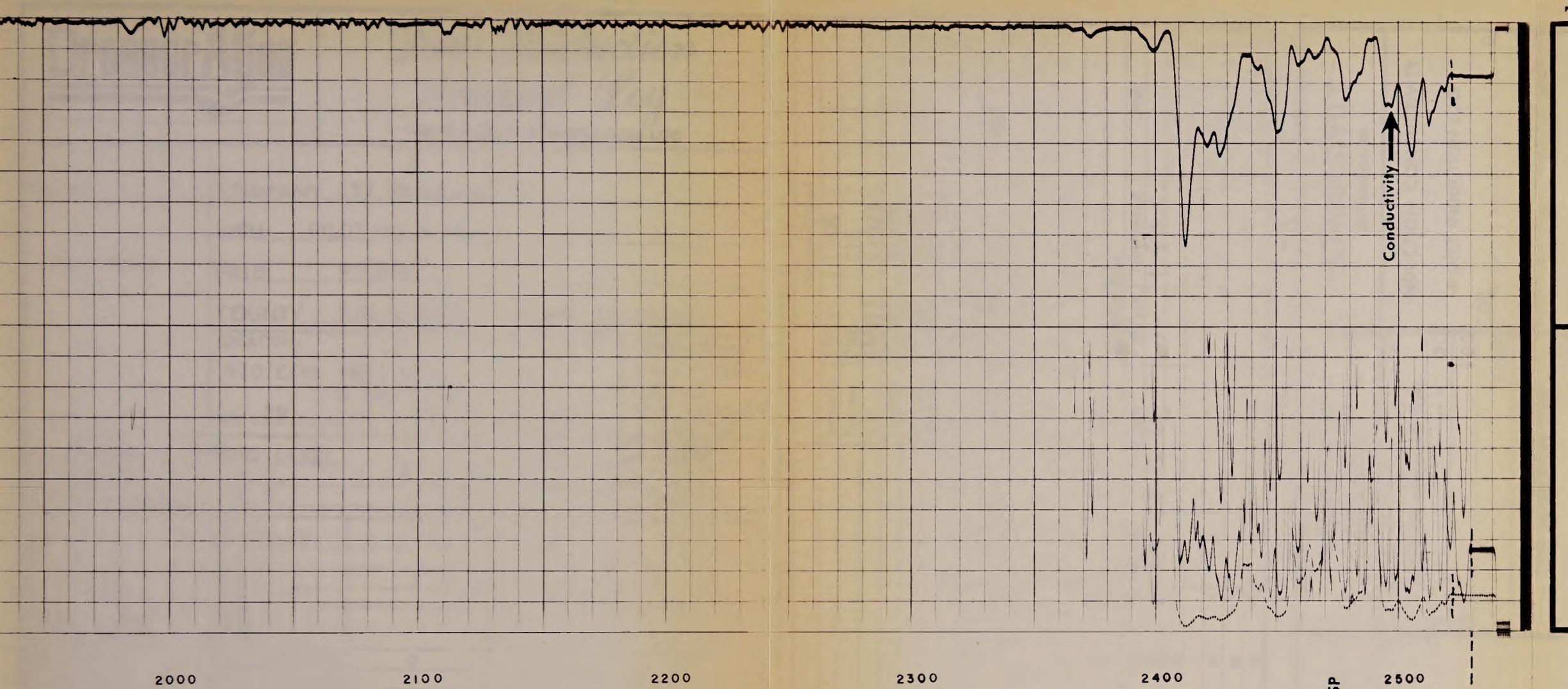
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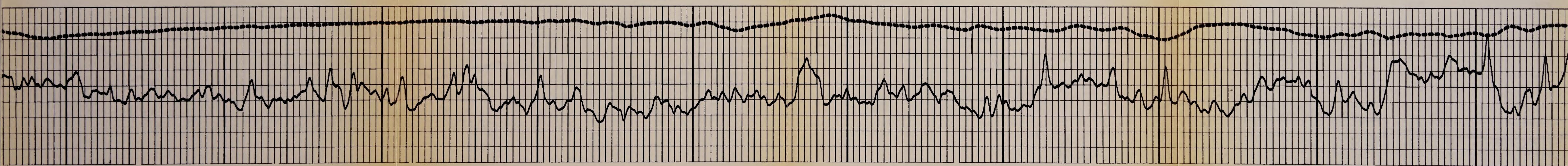
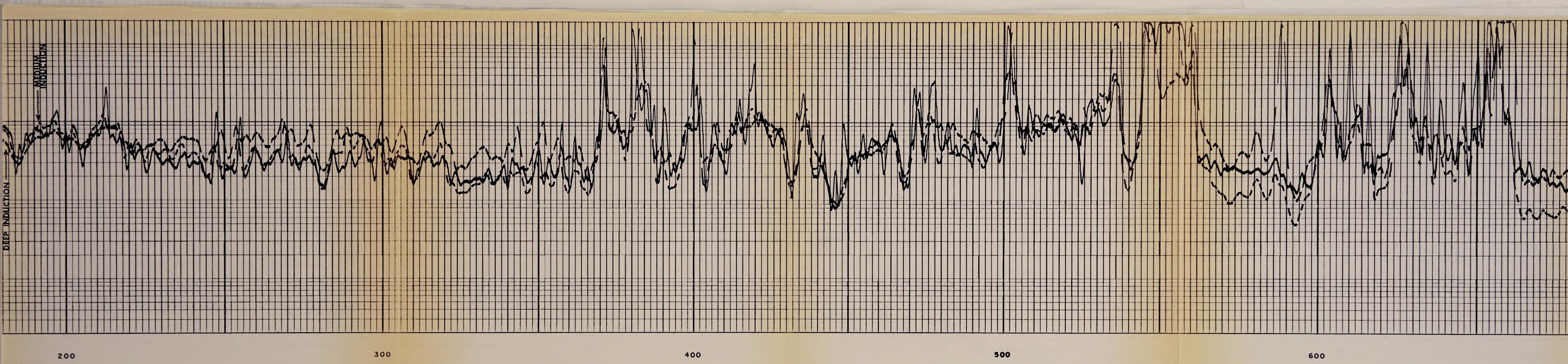
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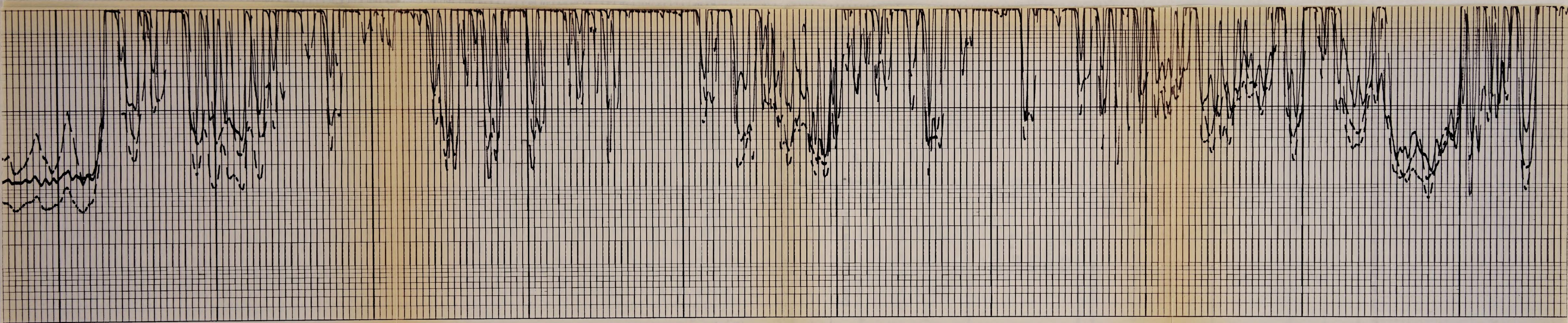
REMARKS		CHANGES IN MUD TYPE OR ADDITIONAL SAMPLES		TYPE LOG		DEPTH		SCALE UP HOLE		SCALE DOWN HOLE	
Depth-Driller											
Type Fluid in Hole											
Dens.	pH	Fluid Loss	Visc.	cc	cc	cc	cc	cc	cc	cc	cc
Source of Sample	@	• F	@	• F	• F	• F	• F	• F	• F	• F	• F
Rm @ Meas. Temp.	21	@ 48	°F	@	°F	@	°F	@	°F	@	°F
Rmf @ Meas. Temp.	18	@ 43	°F	@	°F	@	°F	@	°F	@	°F
Rmc @ Meas. Temp.	36	@ 50	°F	@	°F	@	°F	@	°F	@	°F
Source of Rmf and Rmc	MEAS.	MFAS.									
Rm @ BHT	09	@ 113	°F	@	°F	@	°F	@	°F	@	°F
Time Since Circ.	11	HRS.									
Max. Rec. Temp. Deg. F.	113	°F		°F		°F		°F		°F	
Equip. No. and Location	6110	RS									
Recorded By	WHITE-MILHOAN										
Witnessed By	MR. SNOW										

SPONTANEOUS POTENTIAL		DEPTH		RESISTIVITY		CONDUCTIVITY	
				Ohms m ² /m		Millimhos/m	
				SHALLOW FOCUSED LOG		INDUCTION CONDUCTIVITY	
				20		DEEP INDUCTION LOG	
				0		0	
				0		500	
				0		1000	
				0		1000	
				0		500	
				0		0	
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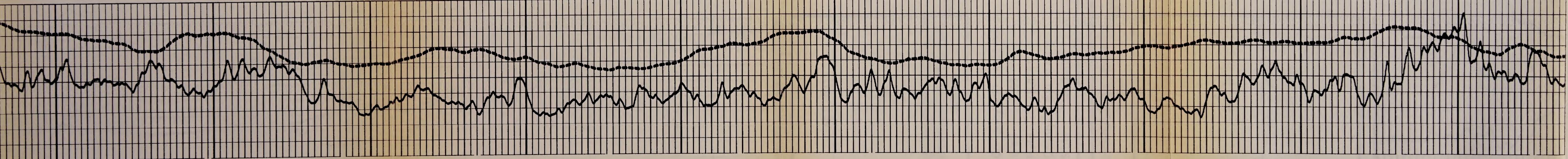
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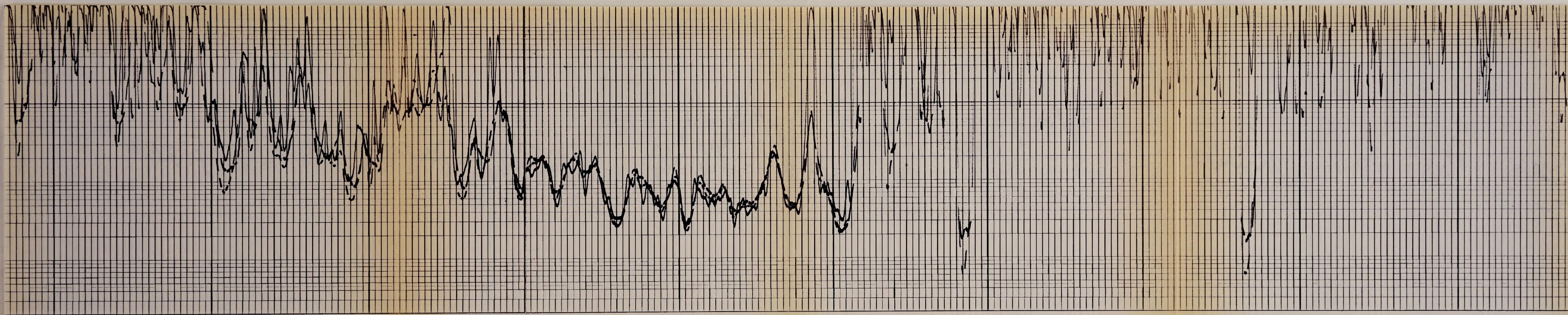
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900

1000

1100





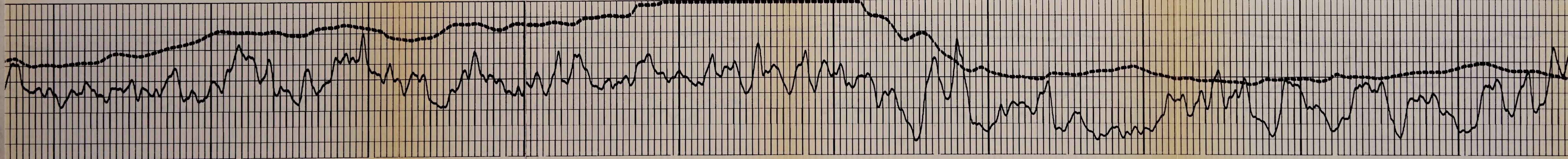
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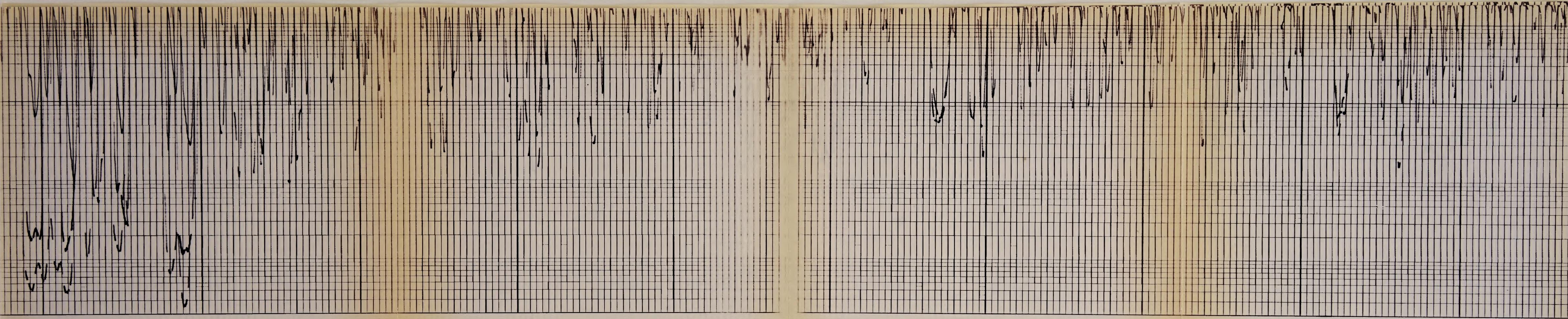
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1400

1500

1600





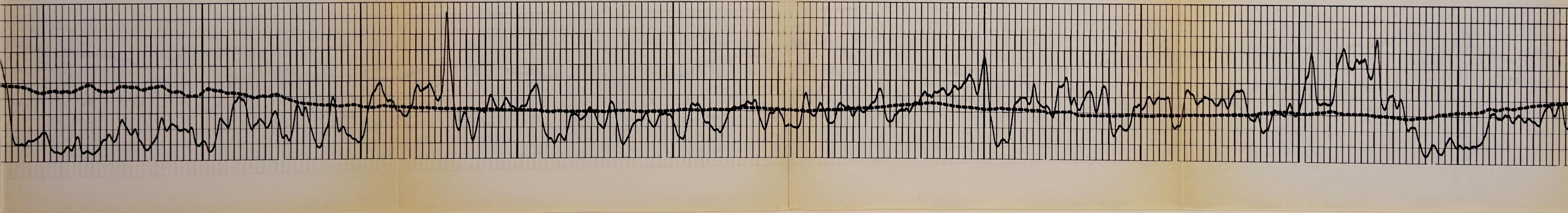
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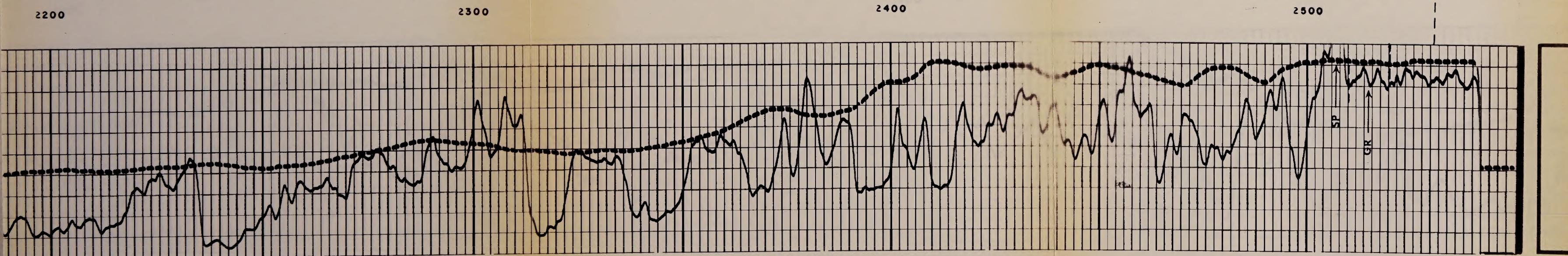
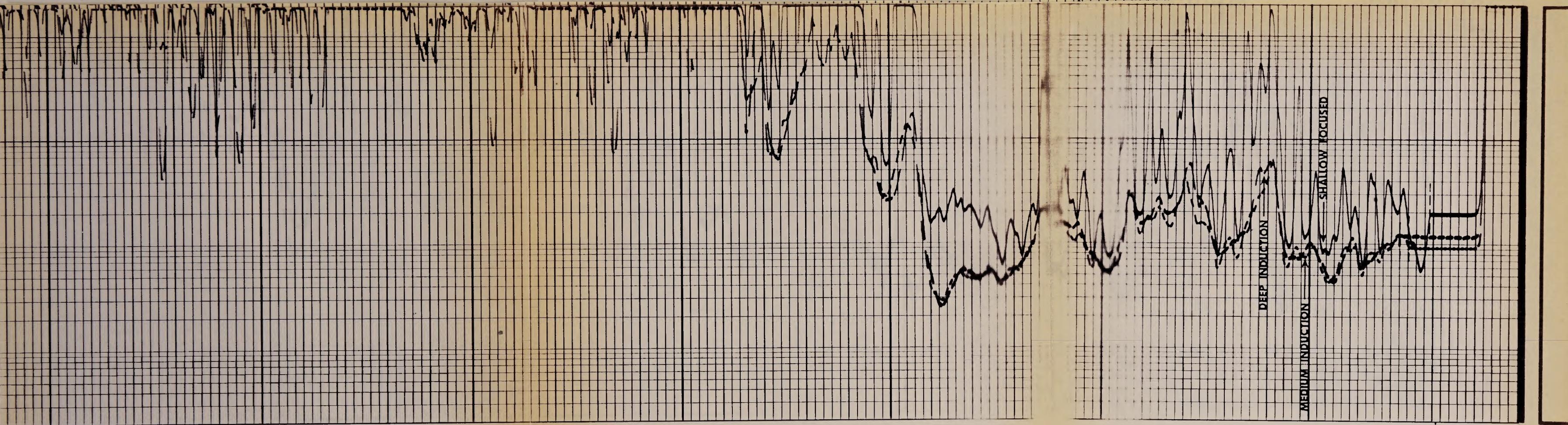
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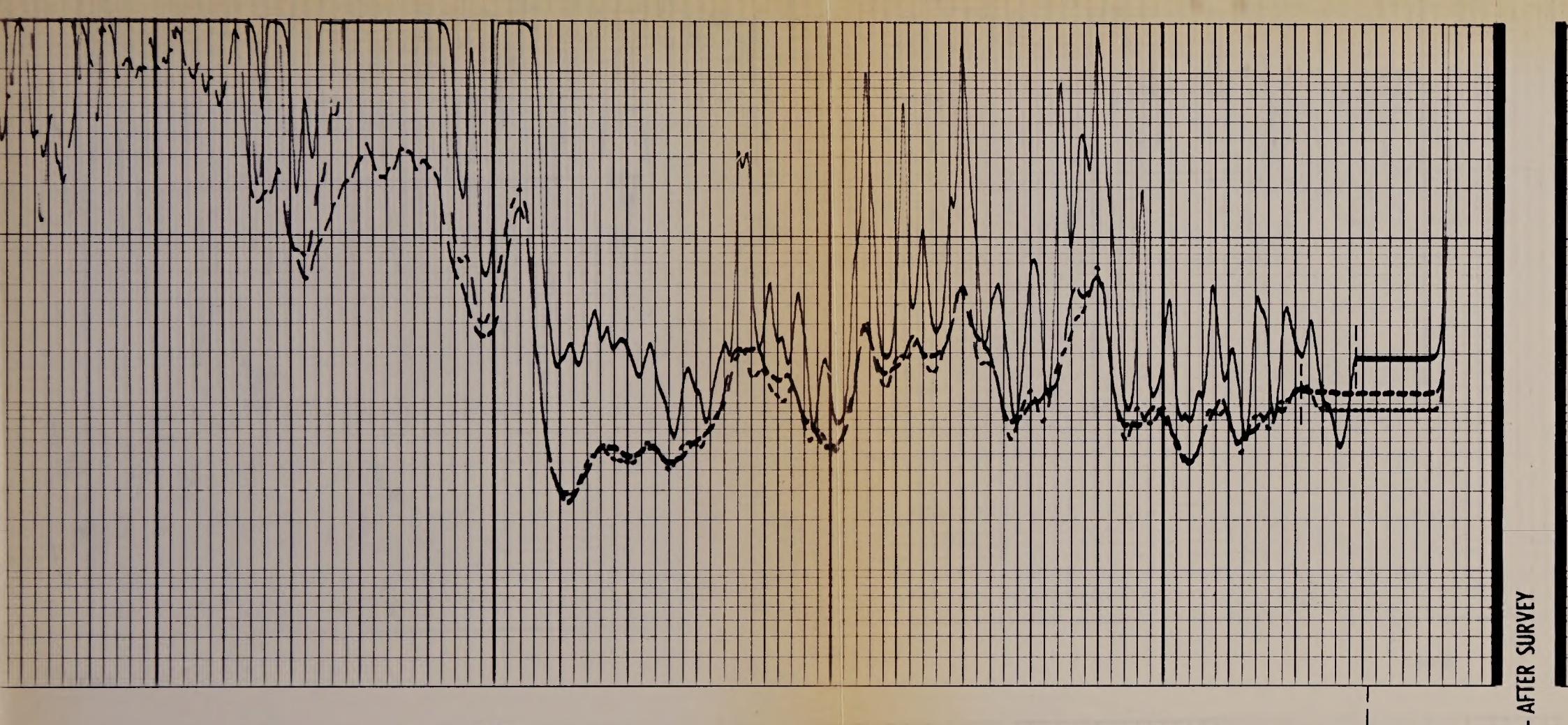
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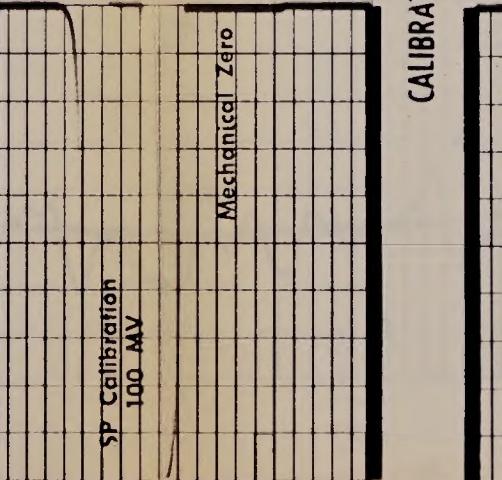
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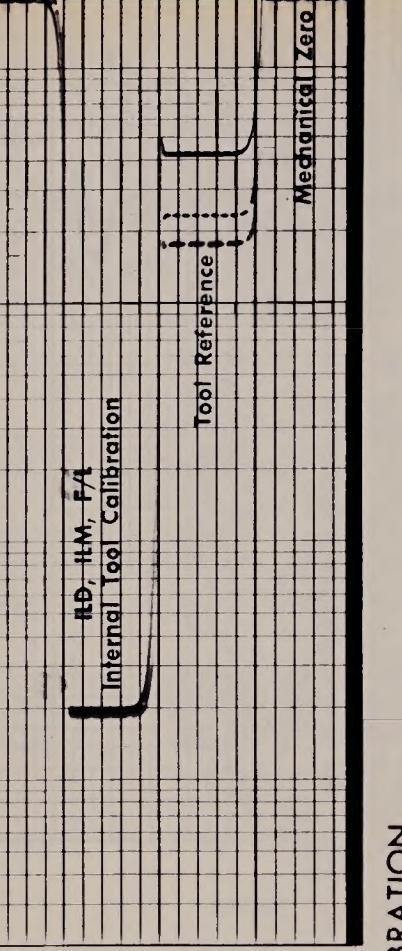




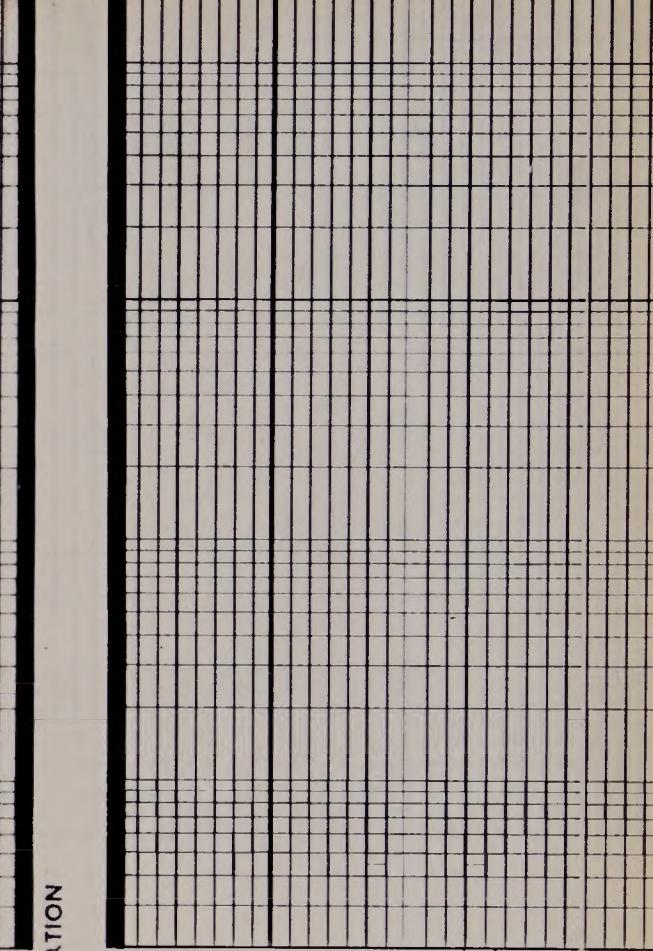
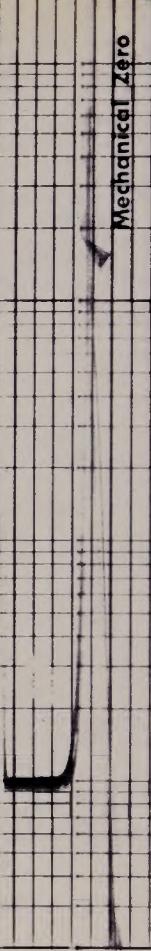
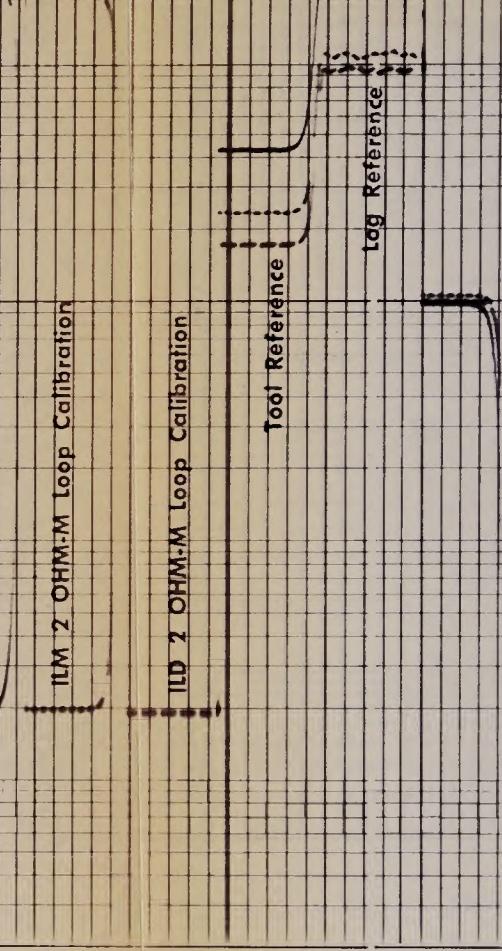
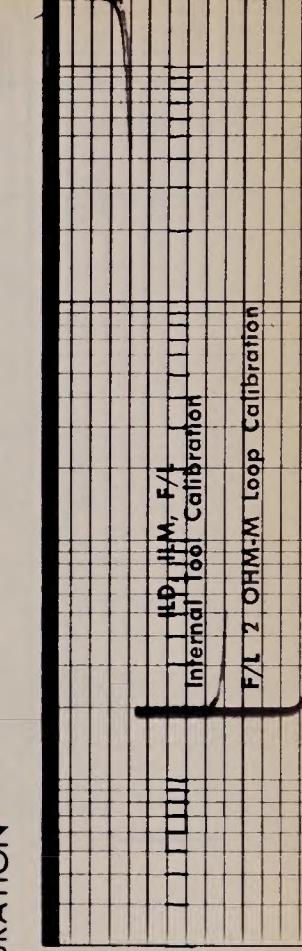
CALIBRATION — AFTER SURVEY



CALIBRATION — BEFORE SURVEY



SURFACE CALIBRATION



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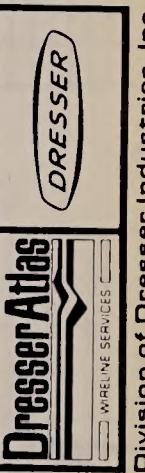
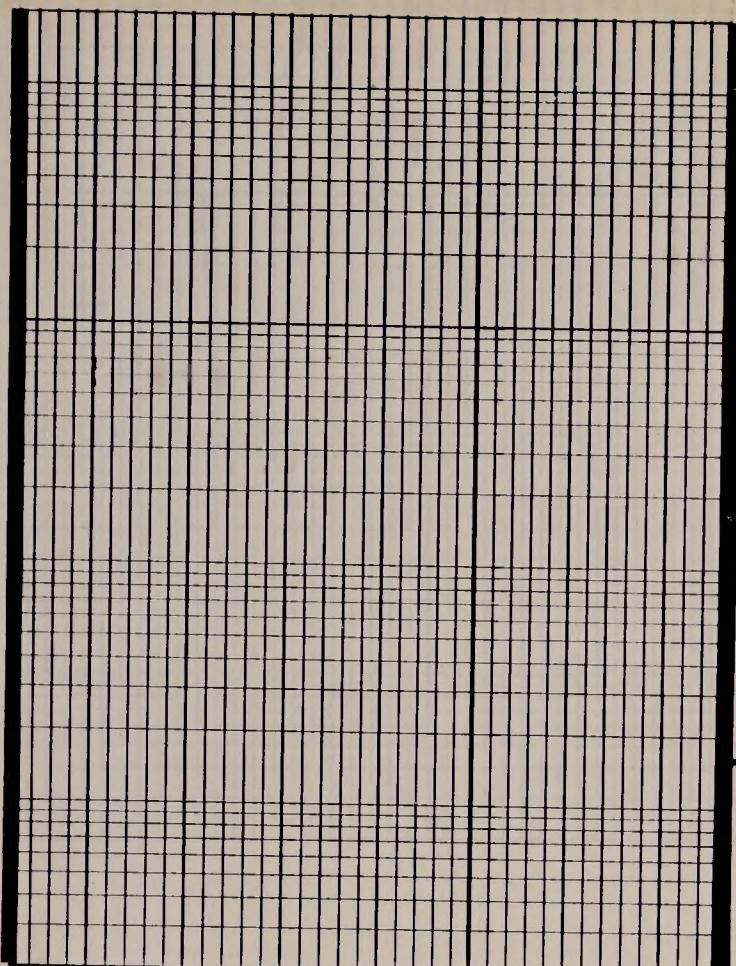
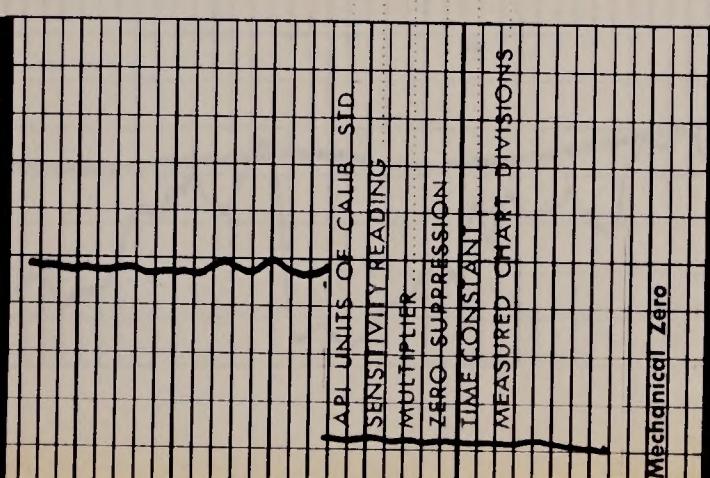
1095

1100

1105

Mechanical Zero

G/R LOG CALIBRATION
BEFORE LOG



Division of Dresser Industries, Inc.

#4071221

ID: 88075059

TN
23
M56
1977
no. 103
V.2

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#4971221

ID: 88075059

Differential
Temperature Log



Differential Temperature Log

FILE NO.	COMPANY ESI DRILLING CO.		
TIGHT HOLE	WELL PILOT HOLE "X"		
	FIELD WILDCAT		
	COUNTY RIO BLANCO		STATE COLORADO
	LOCATION: 420 E/WL 1650 N/SL 6 TH P.M.		Other Services CDL-GR DIFL DIR. SURVEY 4-ARM CAL.
SEC 29	TWP 1S	RGE 97W	
Permanent Datum	GROUND LEVEL		Elev. 6284
Log Measured from	K.B.	4	Ft. Above Permanent Datum
Drilling Measured from	Elevations: KB 6288 DF 6284		
Date	10-25-76		
Run No.	ONE		
Type Log	DIFF. TEMP.		
Depth-Driller	2531		
Depth-Logger	2534		
Bottom Logged Interval	2534		
Top Logged Interval	G.L.		
Type Fluid in Hole	GEL		
Salinity Ppm Cl.	20,000		
Density Lb./Gal.	8.5+		
Level	145		
Max. Rec. Temp. Deg. F	113.0		
Opr. Rig Time	1.5 HRS.		
Recorded By	WHITE-MILHOAN		
Witnessed By	MR. SNOW		

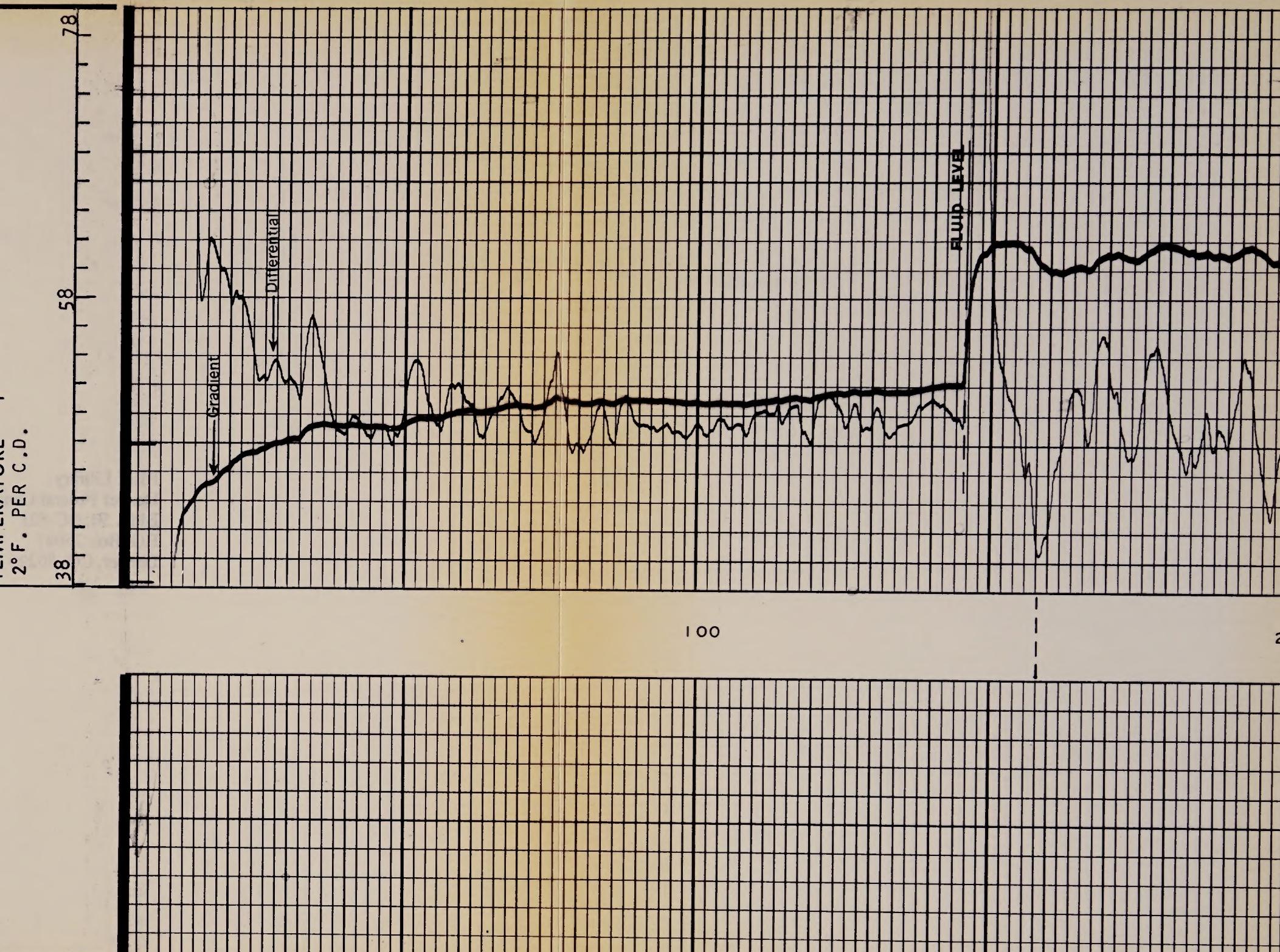
Run	Bore Hole Record			Casing Record				
	No.	Bit	From	To	Size	Wgt.	From	To
1					8 5/8	---	G.L.	156
2	6 1/4	156	2531					

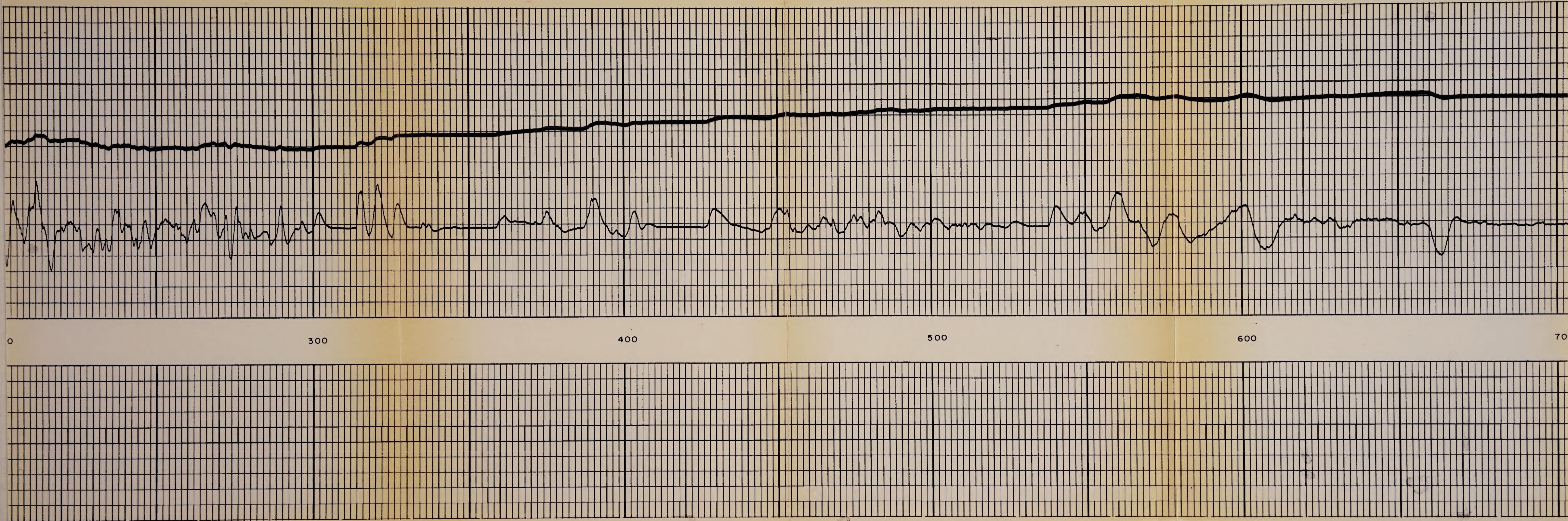
REMARKS: A. J.

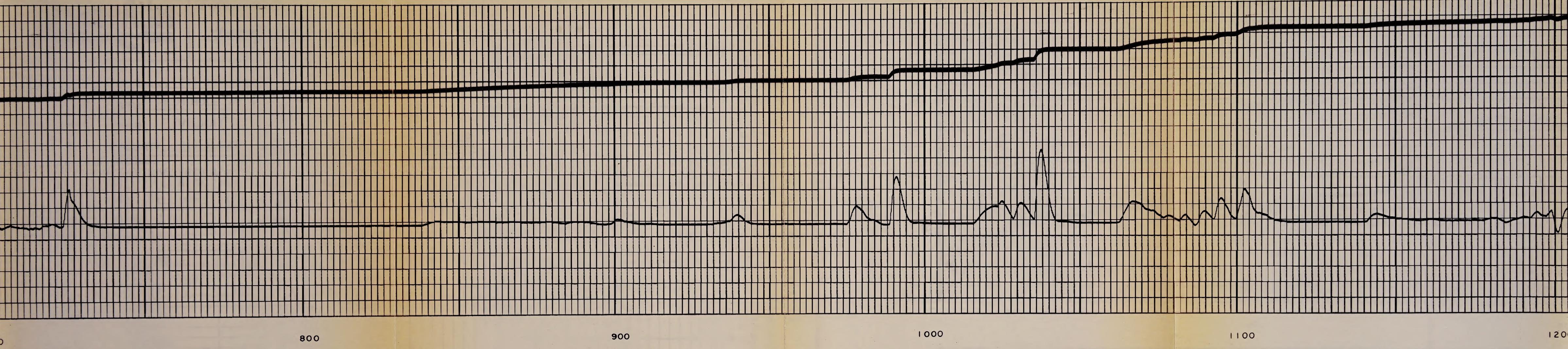
REMARKS	REMARKS			
DIFFERENTIAL TEMPERATURE LOG DATA				
Run No.	1	2	3	4
Date-Time	10-25-76 22:15			
Tool Model No.				
Tool Serial No.	2111			
Truck No.	6110			
Gradient Sens.	2 DEG./C.D.			
Differential Sens.	10			
Logging Speed	RECORDED			
Type Well	EXPLORATION			
Log Purpose	N/A			
Fluid Level	1451			
Well Pressure				
Shut In Time	6 HRS.			
Injected Fluid Temp.				
Ini./Prod Fluid Type				
Ini./Prod Rate				
Ini./Prod Volume				
Ini./Prod Time				
Cross Flow Check				

INSTRUMENT DATA	
Equipment Used	
Run No.	ONE
S.O.	24923
Tool No.	2111
Elec. No.	2111
Panel No.	24202

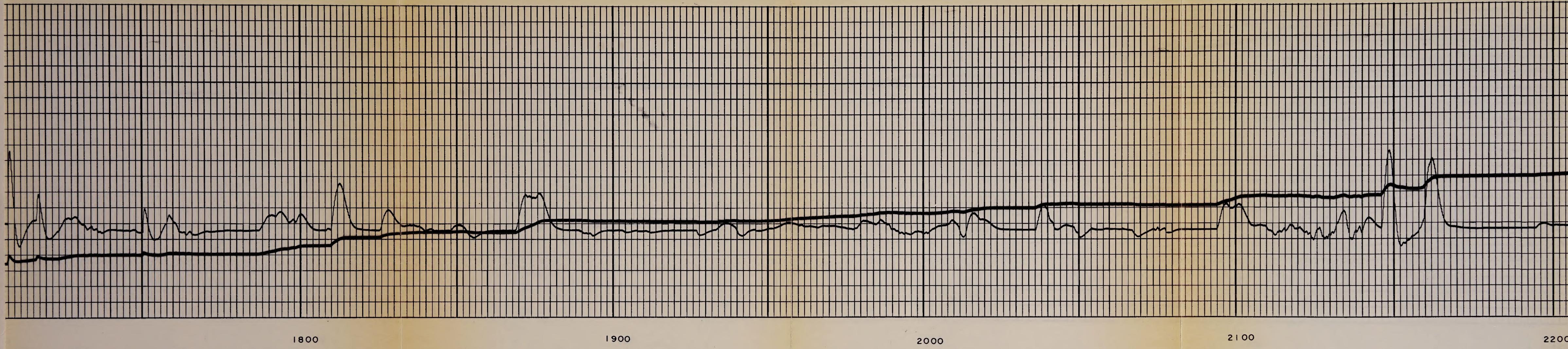
Instrument Dia. 1.7"

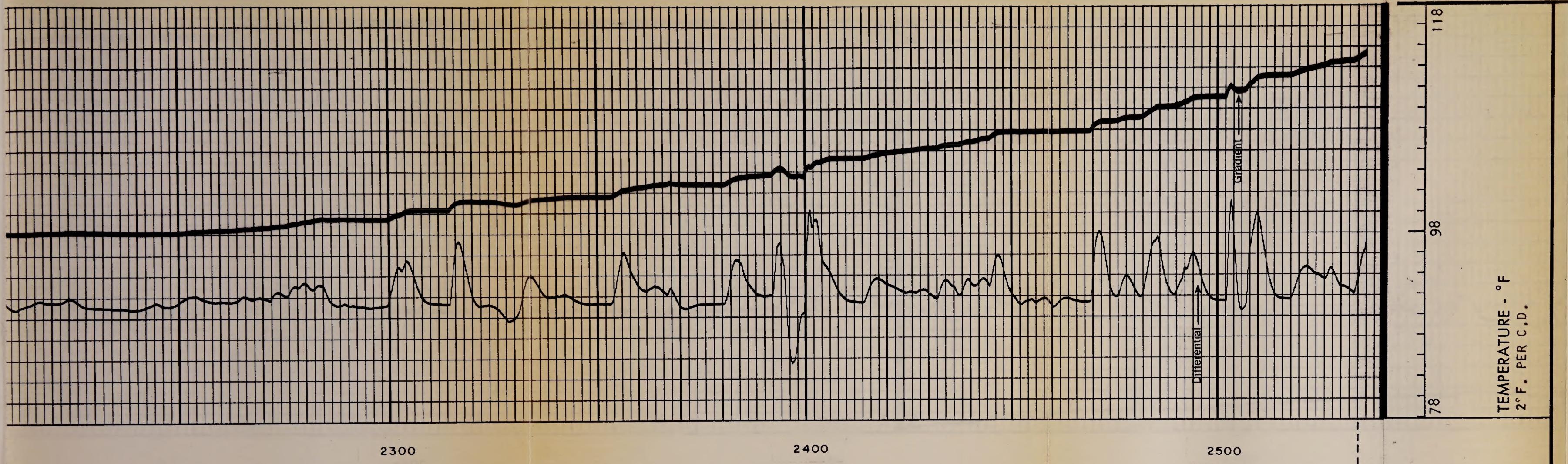












TEMPERATURE - °F
2° F. PER C.D.

TEMPERATURE SURVEY

Company ESI DRILLING CO.
Well # 03
Field WILDCAT
County RIO BLANCO
State COLORADO

Drillers T.D. 2531
Log F.R. G.L.
Log T.D. 2534
Elevations:
K.B. 6288 D.F.
G.L. 6284

#497121

ID: 88075859

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23
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